

**The Relevance of Historical
Project Lessons to
Contemporary Business
Practice**

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contemporary business practice**

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List of Abbreviations and Terms

APM	Association of Project Management
BoK	Body of knowledge
IT	Information Technology
IJPM	International Journal of Project Management
IJMPB	International Journal of Managing Projects in Business
IPMA	International Project Management Association
PMBok	Project Management Body of knowledge
PMI	Project Management Institute
PMJ	Project Management Journal

Abstract

Despite worldwide growth in project management there is a significant gap between research and practice. The discipline lacks a unified theory and established body of research. Bodies of knowledge reflect process and technique yet frequently neglect the political, social and ethical dimensions of project management.

The theory of established academic disciplines evolves through history and by a study of their historical antecedents. The principal question of this thesis thus is concerned with the relevance of historical projects lessons to contemporary business practice and contemporary project management? The secondary question is concerned with the development of an approach to studying this. In addressing these questions the thesis examines some of the challenges with contemporary project management literature, and literature that discusses the relevance of historical project lessons including that from other disciplines such as management.

The thesis describes the use of a qualitative approach, based upon an interpretivist epistemology as the basis for the use of case studies. In addition, it discusses the use of historiography and interdisciplinarity. It then examines the methods used and findings of nine publications and their contributions to the research questions.

The findings of the thesis establish that project management has a deep history, and has been successfully used by developing cultures since the beginnings of civilization. They also establish that historical projects, when interpreted through a business/project management lens, can be understood by contemporary project managers and are of significant and meaningful value to contemporary business practice. The methodology to establish this is also described. Thus the thesis will contribute to both the project management body of knowledge, by broadening it out and augmenting contemporary case studies, and to addressing the theory–practice gaps within project management.

Chapter 1: Introduction and Background

The purpose of this document is to provide the rationale for supporting the submission of a PhD Thesis via the route of Published Works. The research presented in this document refers to the nine publications created in the past ten years which has followed a combination of two themes; historical case studies and project management.

1.1 Why is Project Management Important Today?

Project management is being coined as the profession of the 21st century, the wave of the future in global business, and one of the hottest topics in management, emerging as a true scientific discipline (Gauthier and Ika, 2013, pp. 4).

Until the mid-1980s, interest in project management was limited to engineering, construction, defense, and information technology. More recently, interest has diversified into many other areas of management activity. Currently, more than 20% of global economic activity takes place as projects, and in some emerging economies it exceeds 30%. ... Project management makes an important and significant contribution to value creation globally. (Bredillet, 2010, pp. 4)

1.2 Challenges within the Project Management Discipline

The business world requires a competent and rigorous project management discipline that many argue it is currently not.

1.2.1 Is Project Management an Academic Discipline?

According to Krishnan (2009, pp. 9) an academic discipline is characterised as having a particular object of research, a body of accumulated specialist knowledge, theories and concepts to organise this knowledge effectively, specific terminologies or language, specific research methods, and some institutional manifestation in the form of subjects.

[Discipline] has also become a technical term for the organisation of learning and the systematic production of new knowledge.

Project management is still striving to establish itself as a singular, academic discipline in its own right:

The place of project management within most universities and in the research field shows that it is not yet considered a discrete discipline. (Bredillet, 2004, pp. 2)

...project management has achieved fresh prominence with many arguing, on the one hand, that the discipline, if such there is, is an amalgam of many other disparate disciplines. (Morris, P., et al, 2007, pp. 710)

According to Morris et al (2007, pp. 711) project management is still under the shadow of operations management or other disciplines:

Historically, professions begin with the recognition by people that they are doing something that is not covered by other professions.

1.2.2 Theory (Research) and Practice Gap in Project Management

Project management has three bodies of knowledge (BoK) with differing underlying paradigms (Morris, P., et al, 2007, pp. 711). There is no single, unified, underpinning theory. Gauthier & Ika (2013, pp. 5) suggest that theoretical development is the most important issue for the profession. Bredillet (2010, pp. 6) suggests that the theoretical foundations of project management are still in its early stages of development.

The PMI's PMBoK® (2008) is based on a traditional project management approach with a strong emphasis on control techniques and tools.

bodies of knowledge are central to the perception of the discipline/profession. (Morris, P., et al, 2007, pp. 711).

The thesis refers to it at numerous points because of its widespread use in the project management community. It has evolved as a practitioner's handbook from practice but lacks a theoretical basis, a major limitation. As a project practitioner I am interested in the theory's development.

In addition, project management literature does not reflect the fact that project management has around been around a lot longer than the twentieth century (Gauthier and Ika, 2013, pp. 8). The lack of project history has been debated as a gap in knowledge and a limitation in establishing a theoretical basis. According to Bredillet (2010, pp. 5) academic research into project management only started over the last 15-20 years.

1.2.3 Is Project Management a Weak Discipline?

Without unified underpinning bodies of knowledge, a single theory, and any history, project management is a weak discipline.

A lack of a theoretical underpinning has held back the development of the profession. (Smyth and Morris, 2007, pp. 423)

In arts and classic literature and in philosophy, people typically are aware of the wealth of knowledge found in the literature of the past. In management and organization studies, this differs quite considerably. (Geraldi and Soderlund, 2012, pp. 561)

This has led to calls to expand research as it is too narrow, and focused on process and technique.

The professions are defined largely around their area of distinctive competence. (Morris, P., et al, 2007, pp. 711).

Project management is grounded in a scientific management approach and viewed as scientific discipline particularly in academic establishments (Bredillet, 2010, pp. 5).

1.2.4 Academic disciplines Build upon and Evolve from Their History

In academic literature there has been an even more pronounced acknowledgement of the need for a broader and more diversified understanding of projects and their management (Marshall and Bresnen, 2013, pp. 2). Cicmil and Hodgson (2007) present the case for more critical project case studies that reflect the political, social and ethical dimensions of project management work.

A well rounded discipline needs a repository of contemporary and historical project case studies that contribute to the body of knowledge. Other disciplines like management have reached back and present a similar argument that without history a discipline is open to the latest fads:

The lack of historical attention in strategic management research also highlights the relatively volatile nature of notions and contributions that characterizes the debate, not to mention the irresistible attraction for fads. (Zan 2005, pp. 463)

Maylor and Söderlund (2012, pp. 694) point out that project management research has become too occupied with novel approaches. The *Journal of Management History* has extensively explored historical case studies and lessons:

By placing contemporary thinking in a historical context, management theorists and academics gain greater understanding of the roots of new management concepts

and how they are developed in response to social, economic and political factors.
(Zan, 2005, pp. 461)

and:

History isn't aimed at prediction, it is about understanding patterns and preparing ourselves to the future. (Gaddis, 2002)

1.3 My Research Question and Main Aim

The principal question of this thesis asks, what is the relevance of historical project lessons to contemporary business practice? The secondary question asks, what is the approach used in creating these. I'm also interested in looking at the breadth of project management work like the political, social and ethical dimensions.

The main aim, through this research is to show how this contributes to the project management body of knowledge and strengthens the theoretical roots of the discipline.

1.3.1 Contributions to the Project Management Gap

The historical project lessons and approach both contribute to the project management body of knowledge by broadening it out, to the theory–practice gaps within project management, and to support the establishment of the project management discipline by academics.

1.4 The Structure of the Thesis

The thesis follows six chapters and the chapter themes are reflected by table 1.1.

1	Research Question	Principal	What is the relevance of historical project lessons to contemporary business practice?
2	Philosophy	Ontology	Idealism
		Epistemology	Interpretivist
3	Methodologies	Qualitative	Case Study and Historiographical Research guided by Interdisciplinary research
4	Methods & Techniques	Investigation, synthesis, and interpretation	Case selection, Theoretical Framework, Interviews, Site Visits, Triangulation, Content Analysis
5	Data	Publications 1 to 9	With commentary
6	Conclusions	Contributions to establish	Significance of historical project lessons to contemporary business practice; & the approach to establish this

Table 1.1: The design of the thesis by chapter themes

The thesis completes a literature review which examines some of the challenges with contemporary project management literature, journals, and authors who have discussed the relevance of historical project lessons to contemporary business. This also includes other journals like the *Journal of Management History* that combines business and history, and comprehensively examines historical case studies to highlight management concepts. As of today there are no historical project management journals. To address this in 2011 the IRNOP (International Research Network on Organizing by Projects) conference for project management research called for more research into historical projects and project management.

The thesis examines the philosophical stance best suited to underpin the research and discusses the importance of philosophy on selecting a research methodology to help determine the principal research question of this thesis. It determines that the best approach for researching historical project management is qualitative with an interpretivist epistemology. It then examines the appropriate research methodologies for historical projects and how these evolved through the publications, for example the use of interdisciplinary research. It then explores various possible qualitative research methods for historical lessons and examines my approach and techniques with my publications, the challenges involved, and how learning was taken from historical projects and then transformed for use in contemporary projects. The thesis also reviews my main publications with their underlying contributions and methodological stand points. All nine publications are associated with projects and project management. The first two relate to the creation of an ebusiness solution and an adaptive enterprise. The remaining seven are very specific to project management and examine its various facets (chapter 5). Each specific publication addresses numerous pertinent issues ranging from strategy, leadership, organisational structure and culture; to delivery, implementation, operation, and service levels; to quality, and continuous improvement.

1.5 My Personal Journey

I am a former student of Salford University graduating exactly 30 years to the date (1983) of completing this thesis (2013). When I entered the workforce my first position was at the bottom of the IT ladder in technical support, in the back of a store selling PCs. Within a

couple of years I had progressed to working for a midsize application development organisation (SHL Systemhouse), which first introduced me to some high-end mission critical systems and solutions. After 2 years I ended up working for the vendor (Tandem) first in technical support (again), but quickly moving into the fledgling professional services organisation in 1989 as a consultant. I have remained in this area to date but have changed companies and acquired more skills. In 1989 I was first introduced to project management, when there were very few project managers around and they were treated like scientists in white coats. I continued in my career as a business consultant and I completed numerous client consulting engagements across industries where my focus was to justify and initiate the implementation of business solutions. I was very much involved in Cross-Industry Innovation, an approach that centres on the idea of adapting knowledge from one domain to solve a problem in another domain. Cross-industry indicates that the solution for a problem in one industry can be found and transferred to another industry.

In 1991 I was asked to continue on a project I had initiated and after a couple of years of experience I started to call myself a project manager. Over the 30 years I have taken part in hundreds of client projects, and have seen my fair share of project successes and also failures. Projects can fail at different points in the project lifecycle, the deeper into the project the more painful and expensive the failure for the organisation. In 1993 I completed a project post-mortem for a Canadian financial institution that had experienced a catastrophic project failure, to the extent the business solution (network of ATMs) was pulled out of production. Catastrophic because the loss of services affected many customers but the story was also covered by the media across the province, and this had a severe impact on the financial institution's image and brand in the marketplace.

My post-mortem uncovered that poor decisions had been made fairly early on in the project which had severe repercussions in the implementation. My challenge was that I had to put together a project-get well-plan and get the project back on track. The biggest issue I had was convincing the project sponsors that to be successful they would have to foster some changes and increase the project budget to something realistic in supporting the required service levels. I realized that this would be a difficult conversation. I needed an analogy to help these sponsors realise their culpability in the project. I realised the best way to do this was through a case study, but after much research I could not find a suitable contemporary

one. With a keen interest in history I decided I would research historical project case studies and very quickly I saw the parallels in Titanic's case study. Upon its successful use I realised that historical case studies deflect the finger pointing in a politicised environment reeling from a project failure (a project not meeting its predefined objectives). It provided a safe way of discussing highly contentious issues. It also introduced the concept of finding lessons from history.

Over time this experience was documented into a white paper, then a publication, and eventually a series of publications which will be covered by this thesis (chapter 5). The project was successful upon completion to the point that the financial institution was able to far exceed its levels of service for which it received widespread industry recognition as a service leader. Since then I have continued as a business consultant/project manager with different corporations (IBM 2000-2005 and HP 2005-now). I have always been very passionate about history and have been able to tie this interest into the business world to use as an education tool in business today. The publications are written primarily for business, IT, and project professionals applying today's IT solutions to common business problems. These professionals are looking for some inspiration for their projects, to be successful. The publications use relevant historical case studies to examine how historical projects and emerging technologies of the past solved complex problems and then extrapolate lessons for today. This approach was very much a continuation of the cross-industry-innovation concept, which centres on the idea that knowledge of one domain, the past, can be adapted to solve a problem in another domain, today or in the future.

1.6 Challenges in Writing the Thesis

In answering the principal research question the thesis completes a retrospective review of my nine publications. At the time of writing these publications I had no intention of completing a PhD by Published Work and did not formally establish an ontology, epistemology, methodologies, and methods and techniques. So, in creating this thesis I had to start with the publications and work backwards in determining the approach that I took. This was not simple and there were many challenges in doing this.

Chapter 2: Literature

The chapter completes a brief literature review to help answer and formulate the research question of the relevance of historical project lessons to contemporary business practice. It examines literature from contemporary and historical project management, and from other disciplines. The greater part of literature is contemporary, and focuses on process and technique. There are however some academics that are calling for a change in direction and a concerted research of historical projects. This will help to underpin the theoretical foundations of project management, to support the case that project management is a discrete discipline, and to expand the base of case studies and broaden the body of knowledge. The review highlights journals and authors from other disciplines who have discussed the relevance of historical projects, and successfully derived lessons for contemporary business practice.

2.1 Contemporary Project Management Literature

The relevance and overall direction of contemporary literature is increasingly being challenged by some project management academics.

2.1.1 Challenges with Contemporary Project Management literature

Since 2003 a debate has evolved amongst some researchers in the academic project management community on the direction of project management research, resulting in two main criticisms.

The first criticism relates to the lack of a unified project management theory, and research into the roots of project management. In a critique of contemporary project management research Maylor and Söderlund (2012, pp. 694) point out:

that research has become too occupied with novel approaches, framing every technique and approach as completely new, thereby making limited use of existing theory and prior research. The result is a breakdown of knowledge accumulation.

The second criticism calls to expand research as it is too narrow, focused on process and technique, and reflective of the current project management body of knowledge. This requires a research approach that takes seriously practitioner's lived experience of projects

(Cicmil et al, 2006, pp. 675), and that adequately addresses the 'actuality' of the project based on working and management, through case studies.

2.1.1.1 Theory-Practice Gaps within Project Management

Bredillet (2010, pp. 6) suggests that the theoretical foundations of project management are still in their early stages of development and consist of several incompatible and incomplete theories and perspectives. Theories of project management do exist and have been put forward by Turner (2006a) based on work he completed in the early 1990s (Turner, 2009). But there is no consensus on any particular theory. Sauer and Reich (2007, pp. 1-2) suggested that Turner's approach was very normative and that alternatives were possible. According to Bredillet (2010, pp. 6) the dominant project management theory basis is product development whereas programs take an open system view, seek change in permanent organisations, and have organisational theories, strategy, product development, manufacturing, and change as their theoretical bases.

*Cicmil et al (2006) suggested that to develop a sound theoretical basis for project management, the very nature of projects needs to be examined, and fundamental questions addressing the different underlying **theoretical perspectives emerging from and supporting the project management field are yet to be explored.***

Further a lack of a theoretical underpinning has held back the development of the profession (Smyth and Morris, 2007, pp. 423). Bredillet (2004, pp. 2) suggests the lack of foundations lead:

to theoretical error, underpinning the application of techniques and tools, the lack of a clear epistemological position in most of the research to date, the lack of a clear paradigm in most of the literature, seem to have become a real barrier to effective understanding and communication of the true nature of project management, leading to nonsense, to a dynamic of fad, where hype, advocacy of one's own practice is the rule, reinforced by a lack of critical thinking by the practitioners, who complacently accept seemingly reasonable answers, even if they lead to major failures.

According to Marshall and Bresnen (2013, pp. 2) in academic literature there has been an even more pronounced acknowledgement of the need for a broader and more diversified understanding of projects and their management, something a unified theory of project management would help underpin. According to Gauthier and Ika (2013, pp. 5):

*Most authors herald the development of a solid and explicit theoretical basis for project management as the **crucial and single most important issue for the project management profession.***

They advocate the need to rethink project management research, and to **illuminate the complexity and actuality of projects, that is understanding managerial action in the concrete situation and the processes that go on at various levels** (Cicmil et al, 2006, pp. 678). To do so requires that project management scholars allow for greater pluralism and broader conceptualisations of projects. They argue for research focused on a practitioner or organisational problem.

2.1.1.2 Case Studies in Projects

Cicmil and Hodgson (2007, pp. 143) present the case for more critical project case studies as project management literature frequently neglects the political, social and ethical dimensions of project management work. Further, Cicmil et al, (2006, pp. 679) presented a strong case to examine the actuality of projects, a pragmatic research approach that takes seriously practitioner's lived experience or the people side of projects and studies:

the understanding of the actors' moral and ethical motives (practical reason) and their sense-making processes (enactment) and how their actions unfold over time and in connection with other, multiple events; the experience of emotions and feelings that drive action in complex environments; closer insight into intentions, political agendas and personal drives of individual actors; and the identification of tensions, power asymmetries and patterns of communicative relating among individuals and groups and how they are being negotiated in the context.

There are only a few contemporary case studies with retrospectives that are renowned in the project management community. For example, the Euro tunnel (Buhl, Flyvbjerg, Skamris, 2004), the London ambulance service computer-aided dispatch system project (Beynon-Davies, 1999), and project management in the European Aerospace plc (Quayle, 1999). This demonstrates the difficulty in finding contemporary organisations willing to divulge information that could potentially impact their reputation, or be advantageous to their market competition. Within most disciplines there is a bias with case study research as in the theory, reliability, and validity, and the very status of the case study as a scientific method. Flyvbjerg (2006, pp. 242) contends:

it is worth repeating the insight of Kuhn (1987): that a discipline without a large number of thoroughly executed case studies is a discipline without systematic

production of exemplars, and that a discipline without exemplars is an ineffective one.

This is further supported by Marshall and Bresnen (2013, pp. 2) who state that:

In academic literature there has been an even more pronounced acknowledgement of the need for a broader and more diversified understanding of projects and their management.

Marshall and Bresnen demonstrate through the case study on Brunel's Thames Tunnel project how rich, alternative narratives can be about a project.

2.2 Historical Project Management Literature

The lack of project management theory and need to expand the number of available case studies has seen calls to research project history for the roots of project management, and expand case studies research into historical projects.

2.2.1 Definitions of Project Management

To fully appreciate the body of existing literature on project history requires a brief review of project management. According to Gauthier and Ika (2013, pp. 13) projects have existed since the beginning of civilization:

...projects have been regarded by most project management writers as a universal feature of human existence and a prominent transhistorical phenomenon that has always existed.

Projects have been significant in the evolution of civilizations:

...is hardly worth mentioning; that projects have always been with us, that the human race has only achieved all that it has achieved through projects, even that the project is a universal feature of human existence. (Cicmil and Hodgson, 2006, pp. 30)

This is further examined in chapter 3, philosophy, and the discussion on ontology. According to Bredillet (2010, pp. 13) projects are:

An endeavour in which human, material and financial resources are organized in a novel way, to undertake a unique scope of work, of given specification, within constraints of cost and time, so as to achieve beneficial change defined by quantitative and qualitative objectives (Turner, 1993).

A project is a whole of actions limited in time and space, inserted in, and in interaction with a politico-socio-economic environment, aimed at and tended

towards a goal progressively redefined by the dialectic between the thought (the project plan) and the reality (Declerck et al., 1997).

Scranton states (2010, pp. 2):

Projects lean forward in time, projecting into the unknown. They are uncertain, soft, variable: lacking the solidity of, well, firms.

Projects are polysemic (Bredillet, 2008 pp. 239) and there is limited agreement over **when the term project emerged:**

The Latin word projectum means to throw something forward. The word project originally meant something that comes before anything else is done. When the word was initially adopted, it referred to a plan of something, not to the act of actually carrying this plan out. Something performed in accordance with a project was called an object. This use of project changed in the 1950s when several techniques for project management were introduced: with this advent the word slightly changed meaning to cover both projects and objects. (Kozak-Holland, 2011, pp.29)

Although projects have existed for millennia, definitions of what project management is are very recent.

2.2.2 Early Project Management Research

According to Baalen and Karsten (2012, pp. 222) during and directly after the Second World War large interdisciplinary research projects were set up by the U.S. and British governments in order to solve unprecedented complex problems.

These interdisciplinary research projects gave birth to new, primarily formalistic and abstract, scientific theories like game theory, dynamic programming, operations research, mathematical information theories, and cybernetics. Large size, mission-oriented projects had a huge impact on recent definitions of interdisciplinarity (Klein, 1990). Most famous was the Manhattan project (building an atomic bomb) in which industry, universities, and the US government collaborated.

This resulted in an instrumental and pragmatic view of mission-oriented projects that is part of contemporary project management:

According to Klein (1990), there were two main reasons why mission-oriented projects became so prominent. The first was that universities received considerable amounts of money from the government and foundations for doing this type of research. The second was the growing awareness that real problems of society could not be solved in discipline-shaped blocks. The emergence of Operations Research as a

new academic interdiscipline in the US and Great Britain during the Second World War was based on this instrumental perspective (Baalen & Karsten, 2012, pp. 222).

One of the first papers according to Brady, Davies and Nightingale (2012, pp. 718) was:

...an article about decision-making in the procurement and development of complex weapon systems entitled Application of operations research to development decisions which was written by Burton Klein and William Meckling and published in the journal Operations Research in May-June 1958.

More recently Morris et Al (2011, p.16) has suggested that:

...barring a few exceptions, it is not until the early 1950s that the language of contemporary project management begins to be invented.

As project management literature was not available till the mid-twentieth century a common perception amongst many project manager practitioners is that project management did not emerge as a discipline till then.

2.2.2.1 Project Management a Scientific Discipline

The type of project management literature that emerged from the mid-late twentieth century examined large Western military and industrial projects such as the Polaris and Apollo programs. The literature promoted a very systemic view (Gauthier and Ika, 2013, pp. 8-9):

Early writers were convinced that projects were designed to serve progress and that project management would ensure controllability. This remains the dominant view of project management. As a consequence, projects are, like project management, figures of modernity (Joffre et al., 2006).

The view is grounded in a scientific management approach:

Hence, modern project management emphasizes project planning and control and, therefore, setting up clear project objectives and constraints at the beginning of the project. This clearly links modern project management to the scientific management approach (Joffre et al., 2006).

It is predominantly viewed as a scientific discipline:

In a nutshell, modern project management is based on assumptions such as instrumentality, rationality, universality, objectivity, value-free making, and the possibility of generating law-like predictions in knowledge (Cicmil & Hodgson, 2006).

As a result, project management is still viewed as a technical subject in many academic establishments (Bredillet, 2010, pp. 5).

2.2.3 The Emergence of Project Management as a Unique Discipline

The initiation of the two global project management organisations, IPMA in 1965 and PMI in 1967, further supports the perception, within many in the project management community, that project management only emerged mid-twentieth century and is something relatively new and without a past or history.

2.2.3.1 Project Management Part of Other Disciplines

Project management has only recently started to emerge as a unique discipline academically in universities and colleges (Bredillet, 2004, pp. 2):

The place of project management within most universities and in the research field shows that it is not yet considered a discrete discipline. At most universities it is treated as a sub-discipline of Construction, Engineering, IT or Business faculties. At the same time it is claimed to be a trans-functional discipline. This position contributes to reinforcing the positivist paradigm that pervades its teaching, research and practice.

Project management has been criticized, predominantly by some academics in business and management, as being an accidental profession where, engineers mostly, go into it by accident (Polychronakis, 2011, pp. 24).

2.2.3.2 Project Management an Offshoot of Operations Management

Project management is still under the shadow of operations management (Bredillet, 2010, pp. 4) in many academic institutions, according to Gauthier and Ika (2013, pp. 7):

Many non-project management faculty members still regard project management as a branch of operations management and strongly believe that it is neither a discipline nor a profession but, at best, an amalgam of many other disparate disciplines, or simply a practice with projects being only instruments used to achieve higher-level organizational goals and objectives.

Associated with this, project management is viewed as a product of modern Western capitalism:

In fact, project management aims to optimize the time, cost, and quality triangle, and in so doing, it is geared to rationality and capitalism and as such looks for the most efficient ways to achieve goals and yield profit in the context of a competitive

market. Because projects are geared to progress, project management is a means to transform nature and create new markets and environments. Let us recall here that the military, capitalism, and industrialism are three dimensions of modernity (Giddens, 1990).

2.2.3.3 Development of Project Management Knowledge

In the 1980s, the development of project management knowledge was led by the professional associations (PMI and IPMA) to support their certification programs. The focus was very user-oriented, and so did not always adhere to recognized standards of academic rigour. The PMI based their body of knowledge (PMBok®, 2008) on a traditional project management approach (a strong emphasis on control techniques and tools).

the PMBOK Guide and many of PMI's standards generally do not, in the Network's view, adequately reflect the research literature, either in scope of topics covered or in substantive detail rendered. (Morris, P., et al, 2007, pp. 711)

The IPMA Competency Baseline followed the functional management approach (Smyth and Morris, 2007, pp. 425). A second and third body of knowledge is the APM BOK, and the Japanese, P2M. All three BOKs have differing underlying paradigms (Morris, P., et al, 2007, pp. 711).

Bredillet (2010, pp. 5) argues that academic research into project management only started over the last 15-20 years:

The first academic research conference in project management, the biennial International Research Network for Organizing by Projects (IRNOP) conference, was initiated in 1994. PMI started holding its biennial research conference in 2000, and the annual European Academy of Management (EURAM) conference has had a project management track since its inception in 2001.

2.2.3.4 Research Contextualisation

According to Bredillet (2010, pp. 4), up until recently:

It has been common to assume that projects and project management are fairly homogeneous (APM, 2006; IPMA, 2006; PMI, 2008). However, there is a growing belief that projects are different, their success can be judged in different ways, and they can require different competency profiles for their successful management (Crawford, Hobbs, & Turner, 2005, 2006; Shenhar & Dvir, 1996; Turner & Müller, 2006).

For project management, research contextualisation is very important. Searching for patterns concerning the management of projects can be identified, (Smyth and Morris, 2007, pp. 424) but applicability is contingent upon context. Projects should not be readily compared without understanding the context (Geraldi and Söderlund, 2012, pp. 565):

A major construction project is just, some would argue, too different from the development of a new automobile model. Although some of the ideas move across, the contexts are quite different, yet still complex. This generally underlines the need for plurality of ideas and theories to be able to illuminate the variety of relevant aspects of the studied phenomenon.

2.2.3.5 The Growth of Project Management Discipline in the Business World

In the business and commercial world over the past two decades project management has been one of the fastest-growing disciplines and is now a dominant model in many contemporary organisations (Gauthier and Ika, 2013, pp. 7). According to Bredillet (2004, pp. 3):

Project management becomes the way to implement corporate strategy (Turner 1993, Frame 1994) and to manage a company: "... value is added by systematically implementing new projects - projects of all types, across the organization" (Dinsmore 1999, ix). Management of Projects, the way to manage projects within the same organization (Morris 1997), and Management by Projects, projects as a way to organize the whole organization (Gareis 1990, Dinsmore 1999), are both good examples of that tendency.

In the business world project management is seen as a very important and discrete discipline, that stands in its own right where it is no longer a subcategory of production and operations, or engineering (Gauthier and Ika, 2013, pp. 7). According to Bredillet (2010, pp. 4):

Project management is becoming substantially different from operations management, which continues to emphasize the application of optimization tools to the analysis of production processes (Slack, Chambers, & Johnston, 2006).

The quest for project management knowledge is very much driven by the business world and the significant contribution of project management to the global economy. **Business requires developing relevant competence at all levels—individual, team, organisation, and society— and is critical to improving performance.** Knowledge is needed to develop this competence, and that knowledge should be based on sound, academically rigorous research

(Bredillet, 2010, pp. 4-5). The growth of the project management discipline in the business world is a catalyst for the maturation of the project management discipline, and is putting a new urgency into researching it further academically. In the UK this is embodied in the APM's application for chartered status for the profession (APM, 2013).

2.2.4 The Case for Researching Project History Further

Project management literature does not reflect the fact that project management has been around since the beginning of the civilization. Intuitively, according to Gauthier and Ika (2013, pp. 8), project management has been around a lot longer than the twentieth century:

...projects have been undertaken in one form or another for millennia. Furthermore, projects reflect the past, present, and future of any social world because they are parts of the big technical, political, and historical 'picture'.

Since the early 2000s this shortfall in literature has been increasingly challenged in the project management academic community by Smyth and Morris (2007), and Söderlund and Lenfle (2011, pp. 654):

...the lack of historical understanding of the emergence of project management and the importance of landmark projects.

It has been debated as a gap in project management knowledge and a limitation in the evolution of the project management discipline particularly with establishing a theoretical basis. There is also a risk that alternative approaches, tried and tested, will simply be forgotten, according to Geraldi and Söderlund (2012, pp. 562):

One example of a refreshing re-read of historical literature is presented in the paper by Lenfle and Loch (2010) published in California Management Review. In their analysis of how project management came to emphasize control over flexibility and novelty, they demonstrate the misinterpretation of many of the original ideas underlying the domain of project management. Instead, what were produced were the easy-to-grasp and easy-to-control elements in project management – not the organizing logic aimed to stimulate flexibility and allow for novelty. To a great extent these were carried forward by the simplified textbooks and simplistic handbooks produced in the early days of the professionalization of project management.

The rediscovery of alternative approaches is an important argument in favour of researching historical project management. Geraldi and Söderlund (2012, pp. 560) also suggest that revisiting the classics:

provides us with a baseline for evaluating the extent of change in a specific field over time, and thereby be more critical to how novel the current concepts really are.

They suggest that revisiting the past from a Foucauldian perspective:

...helps us to understand our current limitations and prevailing pre-conceptions, and in that respect, hopefully, free our thought and enable us to enact a different future.

They also suggest that classics can rejuvenate the present and the future where the studies could be **quite uplifting and infuse the agenda** that contemporary scholars are pursuing:

...the continuous reinterpretation of the past based on the development of our current understanding, which generally leads past literature to provide a continuous wellspring or new ideas.

Contemporary historians continually reinterpret the past and their approach and methods will be reviewed in Chapter 4.

2.2.4.1 Examples of Exemplary Research on Historical Project Management

Söderlund and Lenfle (2011, pp. 654) argue that the limited academic literature available on project history is biased towards large, US, military and space projects of the 20th century.

There are some notable exceptions of exemplary papers on historical project management:

- Bailey (2005) applied the theories of project management to the transformation of the British Expeditionary Force from the colonial-style army of 1914 into the victorious continental-style armies of 1918.
- Pheng (2007) compared the modern-day project management framework with managing building projects in ancient China, and *Yingzao Fashi* (Treatise on Architectural Methods) a document examining the official systems instituted for public projects, the management of labour, design and planning of construction works.
- Walker and Dart (2011) compared Roman project management practices with current best practices and concluded little has fundamentally changed in projects management roles and approaches with the exception of tools and techniques.

2.2.4.2 Calls for Historical Project Management Papers

The notable IRNOP conference for project management research in June 2011 identified a knowledge gap in historical projects (Söderlund and Lenfle, 2011, pp. 491). Researchers in

project management such as Garel (2003) and business historians such as Scranton (2008) advocated the potential value of the emergence of a historical perspective for project management. In December 2012 IRNOP along with the *IJMPB* (Geraldi and Söderlund, 2012) published a special issue with research in historical projects and project management in an attempt to fill this void. This included significant historical projects that could contribute greatly to the body of project management knowledge:

- Geraldi and Lechter (2012) examined the historical roots of Gantt charts, one of the most commonly used tools in project management.
- Engwall (2012), analysed the classic – *The Polaris Systems Development* (Sapolsky, 1972). Polaris is associated with PERT and its contribution to project success.
- Lenfle (2012) provided insights into the exploration journey of the Manhattan case. The lessons are of significant value for highly innovative contemporary projects for which neither the goals, nor the means to reach them, are clearly defined at the beginning.

Other notable papers that have appeared since then include:

- Marshall and Bresnen (2013) reviewed Brunel's Thames Tunnel project from five alternative discourses: technico-rational; practice; networks of people, things, and ideas; politics; and society.
- Hughes (2013) reviewed the Victorian London sanitation projects and the interaction of social, technical, political and environmental processes.

All these papers highlight the relevance of historical project lessons to contemporary business practice and projects.

2.2.4.3 Other Bodies of Work Outside of Project Management

There are other publications that are project specific but written from an engineering, architecture (Glancey, 2003), and management perspective with only a brief mention of project management. These concentrate on the historical project outputs, the creation, product, results, or final deliverables. But they fail to discuss the project management dimensions of a historical project that would be of interest or recognizable to a contemporary project manager.

2.3 Relevant Literature from Other Disciplines

The *Journal of Management History* (and to a much lesser degree *Management Decision*) is very relevant to this thesis in that conceptually it forged a very similar path of searching through historical case studies for lessons in the management discipline. These journals are well established (since 1995) and received, and have demonstrated great value in this approach. Zan (2005, pp. 461-464) presents the case for taking this approach, and the potential impacts that include understanding why new management concepts are developed:

By placing contemporary thinking in a historical context, management theorists and academics gain greater understanding of the roots of new management concepts and how they are developed in response to social, economic and political factors.

They include theory testing:

...a historical view of our own knowledge in its evolution can provide a useful mechanism for theory testing, or, in contrast, for theory falsification.

Without history a discipline (like management) is open to the latest fads:

The lack of historical attention in strategic management research also highlights the relatively volatile nature of notions and contributions that characterizes the debate, not to mention the irresistible attraction for fads.

But because the history of a discipline is not established it tends to be ignored:

Not only do strategic management and management studies tend to ignore their own history: it almost appears as if, as a whole, these new research areas took place coming out of the blue. Previous traditions and even historiographies in administrative science are ignored,...

Lamond (2006, pp. 6) argues for the need to shape the present for practitioners:

We need to examine more closely the historical development of management concepts and practices, with a view to how they inform the present and shape what we are and what we do.

Cummings and Bridgman (2011, pp. 77) put forward a creativity argument for the case:

...by encouraging students to develop an ability to think critically about historical representations such as these, not only do we foster the benefits others have attributed to a greater historical awareness, we also encourage students to be more creative management thinkers for the future.

Many of these arguments can be transposed to the discipline of project management because these journals are similar but, more limited in scope as they are examining singular management concepts like risk, entrepreneurship or innovation, and customer relationship management.

2.3.1 Examples of Notable Articles and Case Studies

The breadth of articles from the *Journal of Management History* provides a substantial body of publications that numbers in the hundreds. The articles are very varied, and cover different eras from history, reaching back to the beginning of civilisation, although most fall into the nineteenth or twentieth century.

2.3.1.1 Guide for Developing Future Historical Project Case Studies

The articles fall into several categories (table 2.1) and provide a useful guide for future work.

Category	Description
1	Examines the works of notable figures in management
2	Examines figures, a study of their lives and their ideas
3	Examines the origins of a management concept through its evolution & history
4	Examines the historical cases studies or specific events
5	Explores the reality of historical case study by asking “what if?” questions

Table 2.1: The breadth of *Journal of Management History* articles as defined by five categories

The first and most predominant examine the works of notable figures in the field of management such as Henri Fayol, Frederick Taylor (Payne, 2006), Alfred Thomas, Chester Barnard, Alfred Chandler (Smothers et al, 2010), Peter Drucker, and Michael Porter.

The second category examines the figures themselves, and a study of their lives and how they developed their ideas, and produced their work (Walter-Busch, E., 2006). Most notably, this is an analysis of their influences and experiences that shaped their views. It can also be autobiographical (Chandler, 2009).

The third category determines the origins of a particular management concept (mercantilism, scientific management, time and motion, human resource management, quality management, customer relationship management) by examining their evolution, history, and contributions.

The fourth category examines historical cases studies or specific events to highlight the use of a concept. The *Journal of Management History* editor David Lamond (2008, pp. 189) provides examples of historical events in his special edition.

The fifth category is novel and uses another approach to exploring the reality of a historical case study by asking “what if?” questions as a basis for constructing alternative histories and their future implications (Lamond, 2008, pp. 189):

Richardson (2007) asks the reader to suppose, for example, what would have happened if the battles of Verdun and the Somme had not been? These questions are used to describe and explain the development of alternative history, the What if? school of speculation about the past, as a basis for gaining insight into the present and the future. As Richardson (2007, p. 36) says, the present and future are not always what one thought they could become.

The categories show a creative evolution through the life of the journal.

2.3.2 Impact of Articles and Case Studies

The impact of the *Journal of Management History* articles has been to call for organisations to reach back into history (Hartley, 2006, pp. 278) in order to use it to shape the future:

...one reason organizations are losing their battles to become more efficient is that they do not understand the forces that historically shaped them, are currently shaping them, and will shape them in the future (Roth, 1993). Further to this point, noted scholar Moss-Kanter (1983) observes, conceiving of a different future, change masters have to be historians as well.

The articles spell out the dangers in not paying attention to the past of a discipline:

This apparent neglect of history seems contradictory, damaging even, in a current business environment that is being buffeted with struggles to foster organizational creativity and collaborative management.

2.3.3 Comparative Analysis of Literature and Thesis Publications

The publications presented in chapter 5, when examined through figure 2.1, fall primarily into category 3 and 4. Category 5 is the most advanced as it requires an insight into the use of historical methods and tools to create alternative histories (what if history articles) and their future implications. There are parallels in that some sub-disciplines of the management discipline cross over into project management; namely quality management, human resources management, and risk management.

2.4 Summary

The literature review confirmed the view that the vast majority of project management research literature has been contemporary, and on process and technique. The past has been overlooked because of the perception that project management is relatively new. Some members of the academic community are dissatisfied with current research in that it is just reinforcing a very systemic and scientific view of project management. Recently they have called for a concerted effort to make some changes by producing literature for more critical contemporary and historical project case studies to enrich the political, social and ethical dimensions of project management work. This will contribute to project management, the body of knowledge, and inform the practice in the future. More predominantly it will help underpin the theoretical foundations of project management, and support the case that project management is a discrete discipline. It is also important to mention the significance of the *Journal of Management History*. Although not directly in the discipline of project management, its use of historical case studies within management is very well established.

Chapter 3: Philosophy

3.1 Introduction

Chapter 2 established the need for more critical contemporary and historical project case studies to enrich the political, social and ethical dimensions of project management work (Cicmil et al, 2006, pp. 679). This chapter examines the philosophical stance best suited to underpin the research to address the research question. It begins with an examination of philosophical stances taken by the project management academic community which has been changing in recent years. As the business world has been pushing for a more relevant competence in project management it has also been demanding more rigorous academic research. Some within the academic community are responding by establishing a philosophical stance, advocating interpretivism over positivism, expanding the number of topics, and developing a unified theory of project management. Within the context of this response the chapter discusses the importance of philosophy and the best approach for researching historical project management, and the most appropriate philosophical dimension for my research.

3.2 Introduction to Philosophy

Research is dependent on philosophy and in the project management discipline this has been under scrutiny and changing in the last decade. To better understand this change the section introduces research philosophy.

3.2.1 Dimensions of a Research Philosophy

These include:

- **Ontology:** Theoretical assumptions about what can be known, the nature of being, existence, or reality.
- **Epistemology:** Theoretical assumptions about what knowledge is, how it is acquired, and the possible extent to which a given subject or entity can be known.

These dimensions are defined in figure 3.1 below.

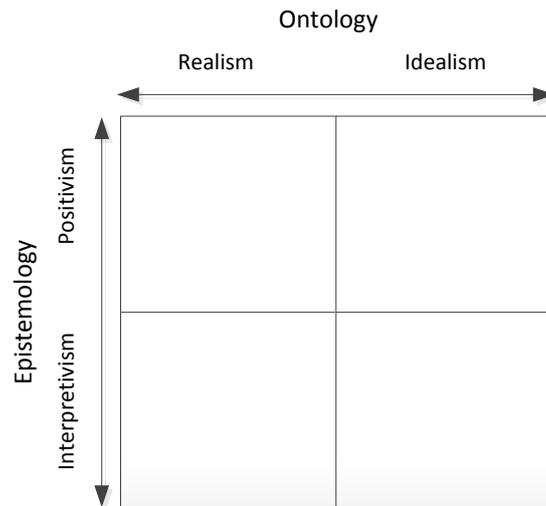


Figure 3.1: Outlines the dimensions of a research philosophy

3.2.1.1 Ontology

How we view ‘reality’ or the world ‘out there’ (ontology) strongly influences the methodologies we choose to investigate it.

- Realism believes that reality exists independently of observers. Further, Critical Realism sees nature as stratified, with each layer using the previous one as a foundation and a basis for greater complexity. Thus physics is more basic than chemistry, which in its turn is more basic than biology, which is more basic than the human sciences (Walliman 2001, pp.170). Objectivism is the notion that an objective reality exists. Critical realism includes an emphasis upon contextual conditions.
- Idealism is a constructivist philosophy that disputes the existence of an objective reality, it is mentally constructed, and is subjective.

3.2.1.2 Epistemology

This specifies ‘what is considered to be true’ and ‘how it can be proven’ (Chua 1986, pp. 604). The methodological assumptions influence decisions about acceptable methods that can be followed to acquire knowledge.

- Positivism (or scientific research) states that the only authentic knowledge is that which allows positive verification. It assumes that there is valid knowledge only in scientific knowledge. Positivist research is more quantitative and typically uses

research methods such as experiments and statistical surveys to produce a law-like generalisation (Saunders et al., 2003). This is the path a scientist would take.

- Interpretivism is the view in social science that the social realm may not be subject to the same methods of investigation as the natural world; and examines the interpretations that social actions have for the people being studied. It arose from the limitations of positivism when dealing with people and capturing their beliefs. Interpretivism may be equated with predominantly qualitative research methods which rely more on ethnographic fieldwork, conversation/discourse analysis or open-ended interviews. This produces rich data which tends to be subjective, and it is concerned about context. Interpretivists can also use quantitative data when required.

Other epistemologies include:

- Empiricism is related to experience and acknowledges that insufficient is known about something to conceptualize or generalise, hence the facts are investigated to **find the story**. Empiricism is a process of determining the truth about the past through rigorous scrutiny of the available facts, evidence, and sources through observation and data, usually seeking to observe without theory, using evidence to induce generalisations and build theory. Both positivists and interpretivists use empiricism.

Sometimes positivist and interpretivist methods are combined, for example in the social sciences, and according to Roth (2002, pp. 132):

...the positivist and interpretivist approaches, as we define them, are not fundamentally at odds with one another but simply require different analytical lenses for the same data.

According to Biedenbach and Muller (2011, pp. 83) in practice there are cultural and geographic biases to either positivism or interpretivism:

...preference for descriptive, often qualitative research in Scandinavia is in contrast to a much stronger reliance on quantitative studies in North America.

3.3 Relevance of Philosophy to the Project Management Discipline

Selecting a research methodology for project management depends on the epistemology (reliability of our knowledge about the subject) and ontology (essence of the subject), Morris (2010, pp. 141), see figure 3.2. According to Smyth and Morris (2007, pp. 423):

[Research] Methodology is defined as a system about how we go about something, in this case research. Research methodology is located in the philosophy of how we come to know things, that is, epistemology. Research methods concern what we use, in other words, the detailed approach and tools used to undertake specific research.

Often the research methodology and methods are confused and clarification is required.

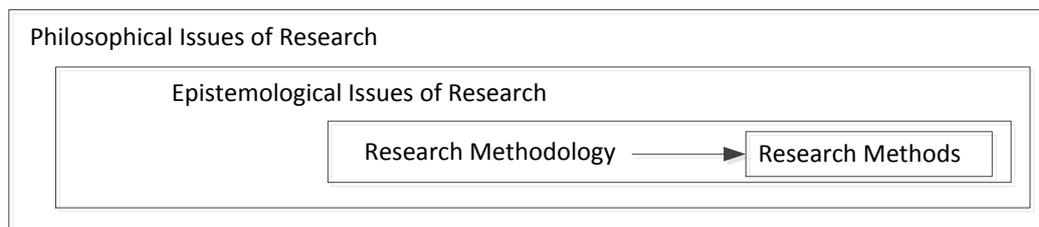


Figure 3.2: Interdependencies between epistemology, methodology and method¹

3.3.1 Philosophical Considerations for Project Management Research

Biedenbach and Muller (2011, pp. 98) found that for the project management discipline both philosophical stances and the choice of research methodology are most often not explicitly expressed. Authors either skip or rush through the philosophical stances, which makes it difficult to place the research in its ontological, epistemological and paradigmatic context.

3.3.2 Ontology

Gauthier and Ika (2013, pp. 6) point out that it is risky, however, to ignore the ontological perspective in the search for a strong theoretical basis for project management research:

Ontology (that is, what is out there to know about) is the starting point of all research, after which one's epistemological (that is, what and how can we know about it) and methodological (that is, how can we get to know about it) positions logically follow...If we, as researchers, are unclear about the ontological and epistemological basis of a piece of work, we may end up criticizing a colleague for not taking into account a factor which his/her ontological position does not allow for (Grix, 2002, parentheses added, pp. 177).

¹ Figure adopted from Smyth and Morris, (2007, pp. 424)

Little attention has been paid to ontology because project management is a relatively young field of study as an academic discipline (Bredillet, 2010, pp. 5). In short, ontological assumptions in the project management field are concerned with what authors believe constitutes project reality. Accordingly, project (management) research is bound to suffer if authors blur or underestimate ontology. Acknowledging this in project management, it has been suggested that the ontological level and the epistemological level, (figure 3.1) is a necessary condition and constitutes a preamble for relevant project (management) research (Bredillet, 2010, pp. 7).

Gauthier and Ika (2013, pp. 6) contend that because project management authors hold differing ontological perspectives they fail to agree on project and project management definitions. This is fundamental as project management develops into a discrete academic discipline.

3.3.2.1 Ontology for Historical Project Management Research

In understanding history an examination of the philosophical and ideological underpinnings is also required. According to Adcroft (2008, pp. 314):

The historian Carr (1961) suggested that to truly understand history, and why things are as they are, one needs to examine the philosophical and ideological discourses which underpin them.

According to Engwall (2012, pp. 596) we don't know how historical actors of the different periods conceptualized their world. There is a question of awareness of a project whether it was seen an entity in itself, an existence, an object to study, a being or reality. Grattan (2008, pp. 176) stated the relevancy of ontology to historians:

Ontology. Historians will be concerned with the nature of the reality they discover and the assumptions made by the actors of the period. Fundamental to understanding the events in sixteenth century Spain is the knowledge that Philip II viewed himself as doing God's work on earth, and thus he believed he could not fail. The documents of the period left by Philip II will carry the influence of such assumptions, which must form part of any historical analysis.

3.3.2.2 Ontological Framework by Historical Periods

Fullerton (2011, pp. 437) cautions reading the present into the past, anachronism, or the imposition of contemporary norms and the present-day ontology of project management

upon a historical case study and its actors. The ontology of today’s project management did not exist in any given historical period. Gauthier and Ika (2013, pp. 12) argue that the meanings and conceptions of project and project management will vary according to the historical periods of the social world—pre-modern, modern, postmodern, and hypermodern (late modern). These differing conceptions (figure 3.3) mirror differing root ontological assumptions by period.

<p>Premodern social world: period of symbolism, tradition, and history</p>	<p><i>Premodern Perspective of Project Management</i></p> <p><i>Project:</i> The project is a creation of human beings that serves gods and, as such, deserves the respect of human beings.</p> <p><i>Project management:</i> Project management is an activity that follows the laws of gods.</p> <p><i>Project manager figure:</i> Priest</p>
<p>Modern social world: period of reason and knowledge</p>	<p><i>Modern Perspective of Project Management</i></p> <p><i>Project:</i> The project is a temporary endeavor undertaken to create a unique product and service and is designed to serve progress.</p> <p><i>Project management:</i> Project management is a technocratic, instrumentalist, and rationalist approach in line with the scientific management approach in the context of rationality, capitalism, industrialism, and military growth. It aims to deliver controllability.</p> <p><i>Project manager figure:</i> Architect</p>
<p>Postmodern social world: period of discourse and rhetoric</p>	<p><i>Postmodern Perspective of Project Management</i></p> <p><i>Project:</i> The project is a discourse of legitimation, and an arena of social and power plays; it serves the interests of the powerful stakeholders.</p> <p><i>Project management:</i> Project management is neither a practice nor a tool but a rallying rhetoric in a context of power play, domination, and control. There are no good or bad forms of project management, because uncontrollability, absence of meaning, multiplicity, ambivalence, and fragmentation/pluralism characterize project management.</p> <p><i>Project manager figure:</i> Rhetor</p>
<p>Hypermodern social world: period of reflexivity</p>	<p><i>Hypermodern Perspective of Project Management</i></p> <p><i>Project:</i> The project is a network of actors embedded in a social context and in constant transformation. The project is a work in progress.</p> <p><i>Project management:</i> Project management is a reflexive practice.</p> <p><i>Project manager figure:</i> Practitioner as a reflexive agent</p>

Figure 3.3: Differing conceptions of project, project management, and project manager change through historical periods, Gauthier and Ika (2013, pp. 12)

3.3.2.3 Historical Context and Contextualisation

Historical context needs to be carefully considered when researching and examining projects in history. This refers to the attitudes, conditions, and views in a historical period. It is the setting for an event that occurs, and has impact on the relevance of the event.

Grattan (2008, pp. 182) warns that:

The contextual environment of these [historical] studies, however, is so complex and diverse that acceptable generalisations are difficult to derive.

For historical research contextualisation is the act of placing events into a proper context that is to appreciate the particular policies, institutions, worldviews, and circumstances that shape a given moment in time. This is a similar view to research contextualisation in projects, expressed earlier in chapter 2.

3.3.3 Epistemology

Selecting a research methodology, and subsequently the research method, depends on the epistemology as shown in figure 3.2. Smyth and Morris (2007) completed a review of methodology used in IJPM articles (2005) that covered 68 papers and 8 editions. They were highly critical of project management research in that there was a lack of epistemological care taken in the selection and application of research methodologies.

3.3.3.1 Positivism in Project Management Literature

Since the 1950s the majority of literature has reflected a systemic view. Positivism has been dominant historically in research on projects (Smyth and Morris, 2007, pp. 425) and underpins the PMBoK® (2008). Bredillet (2004, pp. 2) suggests:

It has been convenient, and lucrative to reinforce accepted belief systems, built on many centuries of thinking based on the positivist paradigm. Positivism has led, in some cases, to over-simplification – one problem equals one solution – and in many cases has obviated against recognition of the complexity and of the relativity of the world.

Other project management bodies of knowledge (IPMA, APM) reflect differing epistemological approaches – primarily positivist and empiricist, with some interpretivist aspects. In the same study Smyth and Morris (2007, pp. 426) found that over 90% of authors did not make their research methodology explicit, and that in over 66% of the sample

positivism was the dominant research epistemology. The main criticism of positivism is that it seeks general explanations. Biedenbach and Muller (2011, pp. 98) stated that:

Management studies in general often report 90% quantitative and 10% qualitative studies, however with a steady increase in interpretivist studies (Aguinis et al., 2009).

3.3.3.2 Challenges to Positivism and Rise of Interpretivism

It has been argued that positivism is simply unsuitable for addressing many project issues, except in the few cases where a simple closed system is in evidence, providing positivism is applied appropriately (Smyth & Morris, 2007, pp. 427).

...hard skills [Positivism] are focused on the administrative tasks, in particular the use of the toolsets within project management, and associated with a hard systems worldview. Soft skills [Interpretivism] enable working through and with people and groups, and with that, handling the associated human factors. (Maylor and Söderlund, 2012, pp. 689)

In their paper Cicmil and Hodgson (2008, pp. 142) challenged readers, project management academics and practitioners to view project management more critically and to expand their appreciation of project management work as being more complex in its social context than merely delivering instrumentalist and mechanistic functional management processes.

Project management is a highly complex, political and social process. According to Sage et al (2009, pp. 541):

...within project management, journals have sought to question some of the underlying assumptions associated with project management knowledge, including, inter alia: the rise of social constructivism as an alternative epistemology to positivism (Bellini and Canonico, 2008; Crawford et al., 2006; Jackson and Klobas, 2008), the shift from 'etic' to 'emic' knowledge (Leybourne, 2007), 'being' to 'becoming' ontologies (Linehan and Kavanagh, 2006; Segercrantz, 2009), mode 1 to mode 2 knowledge (Cicmil and Marshal, 2005) and the increasing number of papers focusing on more tacit dimensions of managerial practice (Morris and Jamieson, 2005).

They summarize and suggest:

*...a shift towards 'bottom-up' craft-based approaches that **emphasize value (however defined), tacit knowledge, (self) reflexivity and social complexity, over the instrumental control of narrow cost/time/quality objectives** (cf. Smith, 2007).*

Morris (2010, pp. 141) also challenged the positivistic view when he advocated:

*...we should really be talking about the management of projects – how they should be set-up, developed, and delivered to optimise **stakeholder success**.*

Morris (2010, pp. 141) suggests expanding the limited set of topics (integration, scope, time, cost, quality, human resources, communication, risk, and procurement) traditionally covered by the PMBoK® (2008):

...to include areas such as strategy, technology, commercial, and not least people because projects are built by, with and for people.

The interpretivist methodology is better suited in addressing project issues related to people and groups, and human factors.

3.3.3.3 Epistemology for Historical Project Management Research

Morris (2010, pp. 141) defines the reliability of our knowledge about the subject as its epistemology which depends on the research methodology but most importantly with the kind of knowledge available. For historical projects this knowledge is predominantly based on a world of social science drawn from historical records, eyewitness accounts of events, narratives, biographies, personal diaries, and oral histories. Interpretivism evaluates the truth of the historical evidence of the past and analyses it in a depersonalized but empathetic manner to create knowledge or learning (Grattan, 2008, pp. 276).

3.4 Most Appropriate Dimensions of Philosophy to My Research

Relative to the research completed for my publications and the principal research question it is important to establish my philosophical stance, the ontology and epistemology. My ontological position, idealism, was based on understanding the nature of the reality that was discovered around the historical period and project, and the assumptions made by the actors. Across historical periods and eras human belief systems or ontology are very likely to change (Gauthier and Ika, 2013, pp. 12), and may affect innovation and ingenuity both important factors in the success of a project.

My epistemic position, interpretivism, was rooted in evaluating the truth of the evidence in the past and analyzing it in a depersonalized manner to create knowledge. This also guided me to a methodology that was be flexible for understanding underlying reasons as to why and how something happened, and the conditions under which a historical

interaction/occurrence or a project happened. Although the research predominantly uses qualitative research methods and data there are occasions where quantitative research methods have been used.

3.5 Summary

The chapter has established there are members of the project management academic community who have published a broader project management and interpretivist body of work. They are striving to establish a unified theory of project management, and expand the number of topics. This is fuelled by the business world's demands for a more relevant competence in project management and more rigorous academic research. Although an epistemology and ontology exist for project management they are often understated, stem from the 1960 era and are positivistic with a simplistic view of projects. Some academics are recognising that these limitations are inadequate for researching historical projects. They are moving towards interpretivism, and examining projects more broadly and diversely where project complexity and actuality, and contextualisation are all important considerations.

In order to help determine the relevance of historical project lessons to contemporary business practice one of the most important considerations is to pay close attention to the ontological framework, based on idealism. This will vary according to the historical periods of the social world, and care has to be taken so as not to impose the present-day ontology of project management upon a historical case study and its actors.

As for the epistemology the chapter determines that the best approach for researching historical project management is interpretivist. This is further endorsed when we turn to management history which has already successfully trodden down the path of learning from history.

Chapter 4: Method of Research

4.1 Introduction

Chapter 3 established that the best approach for addressing the research question is qualitative, based on an interpretivist epistemology, and idealist ontology. This chapter examines the research methodology and research methods. It begins by discussing the selection of an appropriate research methodology for contemporary and historical project management, and how a combination of these was used for my research which evolved through the publications.

The chapter then explores various possible qualitative research methods for researching historical lessons like the use of interviews, data triangulation, and site visits. It then examines my approach and techniques with my publications, the challenges involved, and how lessons were taken from historical projects and then transformed for use in contemporary business and projects.

4.1.1 Qualitative Research Framework

Carter and Little (2007, pp. 1316) clarify a framework for qualitative research (figure 4.1) founded on epistemology, methodology, and method and their interrelationships:

Epistemology guides methodological choices and is axiological. Methodology shapes and is shaped by research objectives, questions, and study design. Methodologies can prescribe choices of method, resonate with particular academic disciplines, and encourage or discourage the use and/or development of theory. Method is constrained by and makes visible methodological and epistemic choices.

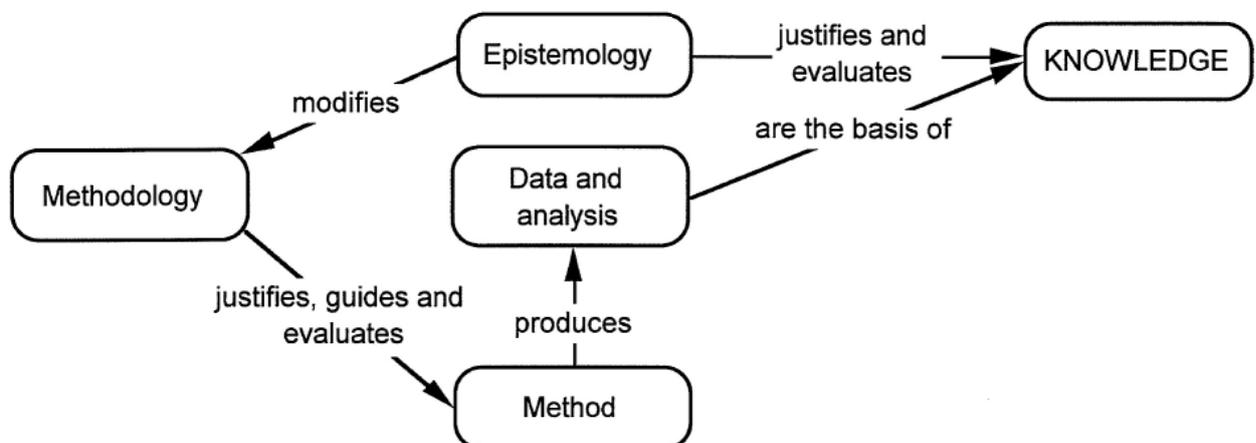


Figure 4.1: The simple relationship between epistemology, methodology, and method (Carter and Little, 2007, pp. 1317)

According to Petty et al (2012, pp.269):

...qualitative research helps to understand human experience and meaning within a given context using text rather than numbers, interpreting experience and meaning to generate understanding, and recognizing the role of the researcher in the construction of knowledge.

4.2 Selecting a Research Methodology

Why do we need a research methodology? According to Morris (2010, pp. 143) crafting a sound approach to framing the research issue and collecting reliable and appropriate data lies at the heart of good research. Its interpretation should be scrupulous, and the argumentation rigorous. Kaplan (1964, pp. 18) defined methodology as:

...the study—the description, the explanation, and the justification — of methods, and not the methods themselves.

There has been much criticism (Smyth and Morris, 2007, pp. 424) that project management researchers pay little attention to the selection of a research methodology.

4.2.1 Choice of Qualitative Research Methodologies

Carter and Little (2007, pp. 1318) suggest the following alternatives for qualitative research:

1. *Grounded theory approaches (Charmaz, 2006; Clarke, 2005; Glaser & Strauss, 1967; Strauss & Corbin, 1998);*
2. *Case study approaches (Stake, 1995; Yin, 2002);*
3. *Various phenomenological or phenomenographic traditions (the study of structures of experience, or consciousness) (Giorgi, 1985; Moutsakas, 1994; Valle & Halling, 1989);*
4. *Narrative, life history, testimonial, and biographical methodologies (Beverley, 2000; Hurwitz, Greenhalgh, & Skultans, 2004);*
5. *Various ethnographies (exploring cultural phenomena - ethnohistory) (Carspecken, 1996; Hammersley & Atkinson, 1995; McCall, 2000);*
6. *Participatory action research traditions (Dick, 2003; Kemmis & McTaggart, 2000);*

The first two are advocated for contemporary project management (Smyth and Morris, 2007, pp. 427). For historical projects two further research methodologies to consider are:

7. *Historiography that is widely used by historians (Grattan, 2008, pp. 176);*
8. *Interdisciplinarity (Wagner et al., 2011, pp. 15);*

4.2.1.1 Grounded Theory

This is a systematic methodology used in the social sciences, and has much support amongst project management researchers. It involves the discovery of theory through the analysis of data, and operates in a reverse fashion from traditional social science research (Glaser & Strauss, 1967). Rather than beginning with a hypothesis, the first step is data collection, through a variety of methods. From the data collected, the key points are marked with a series of codes, which are extracted from the text. The codes are grouped into similar concepts in order to make them more workable. From these concepts, categories are formed, which are the basis for the creation of a theory, or a reverse engineered hypothesis. This contradicts the traditional model of research, where the researcher chooses a theoretical framework, and only then applies this model to the phenomenon to be studied.

Although grounded theory is a strong candidate for a research methodology it was not used in my research. Retrospectively it would be an interesting exercise to complete in several areas of my research like the Titanic or the Giza Pyramid project.

4.3 Selecting a Research Methodology for Historical Project Management

There are two primary research methodologies, case study research and historiography advocated for researching historical project management. Both were used extensively for my publications. A third supportive methodology interdisciplinarity was used with later publications to guide the research.

4.3.1 Case Study Research

As stated in Chapter 2 (literature review) case study research is important to project management. By definition it consists of a detailed investigation that attempts to provide an analysis of the context and processes involved in the phenomenon under study (Yin, 1994). This includes both single and multiple case studies. Stake (2005, pp. 445–448) differentiates between three types of case study: the intrinsic, the instrumental and the multiple or collective. According to Smyth and Morris (2007, pp. 427) case study research is used extensively in management and:

Single cases consider the particular and/or are used to build theory from particular data to apply more generally. Several cases offer opportunity to compare-and-contrast – attention being given to the general and particular.

The case study approach can include “war stories”, which can introduce perception and interpretation in method and link to hermeneutical or interpretative methodologies. There is a link here to the grounded theory method, which also begins to introduce other methodologies by implication.

Willis (2007, pp. 239-240) suggested case studies are:

about real people and real situations ... [they commonly] rely on inductive reasoning ... [and] illuminate the reader’s understanding of the phenomenon under study.

Further he outlined three specific attributes of case study research that make it increasingly attractive:

- 1. It allows you to collect rich, detailed data in an authentic setting.*
- 2. It is holistic and thus supports the idea that much of what we can know about human behaviour is best understood as lived experience in the social context.*
- 3. Unlike experimental research, it can be done without predetermined hypotheses and goals.*

Cepeda and Martin (2005, pp. 857) identified three main elements in a sound case study.

First, the conceptual framework, which identifies research topics and gaps in the literature, clarifies the researcher’s starting interpretation of the key issues that are going to be developed.

Second, the research cycle includes:

- Research planning that guides rather than prescribes the research activities to be conducted.
- Data collection, where the researcher examines the data, looking for new openings for exploration, unexpected outcomes and emergent topics.
- Data analysis involves the ongoing iterative processing of transcripts in order to establish patterns within the data.
- Critical analysis of these patterns and reviewing the whole process and structures, evaluating the outcomes, and identifying opportunities to build new theory.

Third, the literature-based scrutiny of developed theory that emerges from the continuous interplay between the research cycle and the conceptual framework. This process ends

when the research reaches theoretical saturation and incremental additions to the understanding of the topic are slight.

Cepeda and Martin identified three main elements in a sound case study (figure 4.2) which closely fits with what I did with my research and publications.

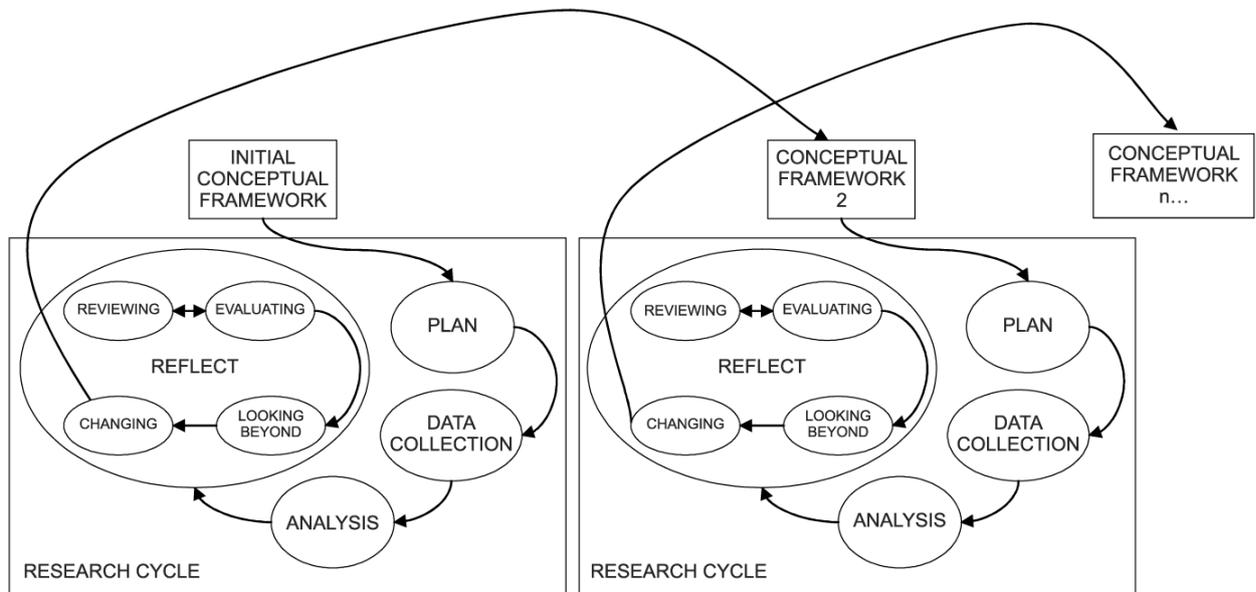


Figure 4.2: Multiple iterations of these research cycles enact an iterative spiral towards understanding (Cepeda and Martin, 2005, pp. 857)

4.3.2 Historiographical Research

Historiography is defined by the *Oxford English Dictionary* as the study of writing of history, of historical perspectives over time, the changing research interests of historians and a methodology of historical research and presentation. For example, the views on Ancient Egypt changed between 1900 and 2000, as the research interests of Egyptologists changed from finding treasures, to discovering habitats and skeletal remains. Historiography examines the changing interpretations of historical events in the works of individual historians.

For some of my publications close attention had to be paid to the historiography. For example, with the Titanic project the availability of knowledge and research increased greatly up to the centenary (2012), and different historical perspectives were shaped by new and evolving theories like Brown's (2000, pp. 9) Grounding Theory, (Titanic was grounded onto an ice-shelf).

The *Journal of Management History* contributed to the debate on the writing of management history in a special edition (Grattan, 2008), and collected general advice from eminent historians and suggested a particular approach for the management historian:

The aim is to encourage the writing of management histories that can contribute to our knowledge of the past but also can form the basis for further hypotheses and insights in the field of management. (Grattan, 2008, pp. 174)

The thesis advocates that this advice can be equally applied to project management. Traditionally historians have taken a narrative based approach. Stone (1979) defined a narrative as organized chronologically, focused on a single coherent story, descriptive rather than analytical, concerned with people not abstract circumstances, and deals with the particular and specific rather than the collective and statistical. He reported that:

More and more of the 'new historians' are now trying to discover what was going on inside people's heads in the past, and what it was like to live in the past, questions which inevitably lead back to the use of narrative. (Stone, 1979, pp. 13)

The past is increasingly seen as a narrative which is constructed through historical writing. Historical facts only become useful when assembled with other historical evidence, and the process of assembling this evidence is understood as a particular **historiographical approach**.

Historians need to be empathetic to a period and handle the facts in-line with the society and ideas that existed at the time. Grattan (2008, pp. 176) discusses the use of general historiography and its particular application to management history stating that historiography is essentially an art or a craft.

This brief consideration of the nature of history is consistent with the idea that the events of the past can be crafted into a meaningful account, rather than attempting to treat the evidence scientifically. The raw material, the clay, of history is evidence and empathy with this material is essential in the writing of history.

4.3.3 Interdisciplinary Research

This supportive research methodology evolved from a knowledge gap identified in research for *The History of Project Management* (Publication No. 6). There was scant primary evidence for the Giza Pyramid project. Other disciplines were examined in how they overcame similar knowledge gaps to create a more accurate picture of the past.

4.3.3.1 Overcoming the Gaps in Knowledge - Dinosaur Detectives

One of the best examples is with palaeontology. Since the 1840s, thinking and new ideas were constrained by the paradigm of the time, initiated by Richard Owen, that dinosaurs were part of a species of terrible lizards; cold blooded reptiles that lived in a hot tropical climate (figure 4.3). Since the 1960s new evidence was not fitting into this view which led to the Dinosaur Renaissance, a rethinking of the paradigm. In the 1980s a few palaeontologists battled a very misinformed and entrenched view that dinosaurs were slow lumbering creatures. They challenged assumptions where there were discrepancies and inconsistencies. They reviewed the known evidence more carefully, objectively and logically. Foremost they turned to interdisciplinary research like forensics, X-ray computed tomography, computer generated imagery that provides biomechanical simulations, and comparative anatomy with modern animals in similar ecological niches. They triangulated and corroborated all this evidence.



Figure 4.3: The 1940s view of dinosaurs, big, slow-moving, stupid, cold-blooded clunkers (Zallinger, 1947)



Figure 4.4: The contemporary view sees dinosaurs as sleek, fast-moving, intelligent, warm-blooded (Fellman, 2008)

As a result, contemporary scholars view dinosaurs as agile, warm blooded creatures, closer to birds than reptiles (figure 4.4) that live in the extremes of hot and cold climates, like the polar dinosaurs of the Mesozoic poles (Buffetaut, 2004, pp. 225).

Interdisciplinary research is widely used in scientific research (Wagner et al., 2011, pp. 15). It addresses complex problems by approaching these simultaneously with deep knowledge from different perspectives. According to Popper (1963, pp. 88):

We are not students of some subject matter, but students of problems. And problems may cut right across the borders of any subject matter or discipline.

4.4 Actual Combined Research Methodology Used for My Publications

The methodology had to examine narratives of accounts, specifically the actor's experience or the people side of projects. The methodology used combined elements from both case study and historiographical research. In later publications interdisciplinary research guided the research to other disciplines like archaeology to overcome the knowledge gap.

The first step determines the idea and central concepts for the publication, selects the required case studies, creates a theoretical framework and determines the research questions.

4.4.1 Idea for a Publication

This selects a central idea or concepts. Across my publications these have varied, e.g., creating an e-business solution or adaptive enterprise, or project management.

4.4.2 Case Selection

Case selection is very important, according to Flyvbjerg (2006, pp. 240):

...no universal methodological principles exist by which one can with certainty identify a critical case. The only general advice that can be given is that when looking for critical cases, it is a good idea to look for either most likely or least likely cases, that is, cases likely to either clearly confirm or irrefutably falsify propositions and hypotheses.

The approach used has been relatively consistent across past, current, and future publications. It consists of two sets of criteria. The first guides the research to find case studies that:

1. are recognizable today and not too obscure,
2. are definitive examples of notable projects (both successes and failures),
3. have identifiable actors who are part of a team,
4. have good ethno-history,
5. have on-going research (archaeological or other) that brings new evidence forward.

The second establishes specific criteria related to the central idea or concept for example, with:

On-line, On-time, On-budget (Publication No. 1) the case study had to address the concepts of project and operational failure. The three disasters examined (Titanic 1912, Chernobyl 1985, and Challenger 1986) all fitted but the volume of available data and ongoing research on Titanic was vastly superior. Hence it was selected.

Project Lessons from the Great Escape (Publication No. 4) the case study had to feature an intimidating project scope, few resources, severe time constraints, an uncoordinated team, unclear objectives, hostile groups trying to shutdown the project, and no executive sponsor.

The History of Project Management (Publication No 6) required landmark case studies (Giza Pyramid, Greek Parthenon) that were firsts in the use of a technology (material or tool) or process, or truly influential on all projects that followed.

4.4.3 Creating a Theoretical Framework and Lens

This is similar to the conceptual framework (figure 4.2) in the research cycle (initial, 1, 2) and takes an iterative approach till saturation is achieved. This provides a particular perspective, or theoretical lens, through which to examine a topic (case study), and guides the research as to what issues are important to examine. Qualitative researchers use theoretical lenses (Creswell, 2013, pp. 63) or perspectives (of gender, class, and race) to shape what is looked at.

When illuminating a phenomenon from multiple lenses, new insights and understandings are generated that were not possible from only a single lens (Kuhn, 1962).

Grattan (2008, pp. 176) introduces the lens to view the past:

*These **lenses** can alter or refine historians' view of the past. History adopts a scholarly framework and attempts have been made to make history more scientific by posing hypotheses to be proved or rejected. All of these ideas affect the writing of history and can account for the way historians continually revisit periods and events in history using the **lens of a particular new ideology**.*

Historians use lenses from disciplines like economics and social sciences to bring new dimensions and ideas to a topic, and interpret events and thinking from the past. The lenses alter or refine the historians' view of the past and why historians continually revisit periods and events. Most importantly they guide research and shape the methods by defining problem areas, content considerations, assembling evidence, and research questions that need to be answered.

In the publications the lenses have included e-business solutions, creating an adaptive enterprise, or project management. Some guiding principles were also established where the publications are:

1. readily understood by a contemporary business audience when presented through the lens,

2. espousing the principles of a concept and creating an awareness of past lessons.

The concept of the lens is very important to the research for the publication.

4.4.4 Determine Research Questions

These provide a clear, concise focus for the research. For example, with some of the aforementioned publications:

- No. 1: Did Titanic's poor project management contribute to the disaster?
- No. 4: In the Great Escape did Roger Bushell create an agile project resilient to change and hostility?
- No. 6: How was the Giza Pyramid built in 20 years?
- No. 6 & 9: How was Brunelleschi able to complete the Duomo project deemed impossible by his peers?

4.4.5 Investigation, Synthesis and Interpretation

Where figure 4.2 outlines the three activities of data collection, analysis, and reflection, here the second research methodology, historiography, was used for my publications. In the discipline of management history Carson (1998, pp. 30) put forward an approach to help potential authors with their submissions to the *Journal of Management History*. First explicated by Ranke, a 19th century German historian, the process of historiography comprises of three steps (Gottschalk, 1956, pp. 28):

1. **Investigation** involves the discovery of historical facts – those that relate in a chronologically consistent manner and can be used collectively to develop causal explanations. Facts should be subject to both internal and external criticism, and triangulated.
2. **Synthesis** involves the integration of authentic credible evidence into a logical, causally explanative narrative.
3. **Interpretation** and explanation of the narratives, untangling the complexity of causes that **move human events**, and examining their antecedents:
 - (a) deep structural causes, which often have origins far removed in time and space from the event in question;

- (b) contextual causes, which stand in a more proximate temporal relationship to an event being studied; and
- (c) triggering causes, which are closest in time to a focal event.

The historiographical research methodology is outlined in more detail further below and how it justifies, guides, and evaluates (figure 4.1) the research methods.

4.5 Selecting Research Methods

Methods refer to the tools and techniques and differ from methodologies (figure 4.1). Sometimes the two are confused.

Methods concern what we use, in other words, the detailed approach and tools used to undertake specific research. (Smyth and Morris, 2007, pp. 424).

4.5.1 Choice of Historical Research Methods

These comprise of the techniques and guidelines by which historians use primary sources and other evidence, such as secondary and tertiary sources, to research and then to write history. Historians must be aware not to confuse the retelling of historical events and inclusion of anachronism, with too much conceptualizing of a subject. Historians use their own language in research, a unique linguistic style (Carson, 1998, pp. 31).

The writing of history is based on the critical examination of sources, the selection of particulars from the authentic materials, and the synthesis of particulars into a **narrative** that will stand the test of critical methods.

4.6 Actual Research Methods Used for My Publications

All the methods listed below are qualitative and are guided by historiography.

4.6.1 Investigation

The following methods were used for data collection.

4.6.1.1 Qualitative Review of Known Literature Related to Central Concept

The process is to research publications (books, white papers, journals, research reports) related to the contemporary management concepts at the core of the publication. With *Titanic Lessons for IT projects* (Publication No. 3) the concept related to project and

operational failures, and for this the Chaos (2011) report was important in understanding, by industry, project success/failure rates and causes.

4.6.1.2 Qualitative Review of Known Literature Related to the Historical Case Study

The process starts with readily available common literature, on-line or through libraries, and typically this leads to secondary sources.

Secondary Sources

Secondary sources are more common, and very useful in providing extensive bibliographic information for delving further into a subject. These are modern re-interpretations of the case study, and often change as new evidence is uncovered, or ideas are developed. For example, the ongoing debate with the Giza Pyramid project of how blocks were pushed up to the top, whether by an external ramp or the more recent Internal Ramp Theory.

Although there may be a rich data set of publications around a particular case study, my experience has been that close attention had to be paid to the author's world view or ontology. For example, when examining the publications around the Greek Parthenon project, all had either a rich engineering or architectural perspective but lacked a project management perspective.

Primary Sources

Once the basic story-line is identified, uncovered and grasped the next step is to follow the trail from secondary sources to any primary sources cited. These can be found through National Archives like Kew Gardens, the UK government's official archive with 1,000 years of history, or the U.S. National Archives in Washington DC.

Primary sources are first-hand accounts of information and include personal diaries, eyewitness accounts of events, interviews and oral histories. Care needs to be taken with primary sources as they can be very biased, and influenced by the writer and their world view, linked to their socioeconomic status.

Alternate Sources Identified through Interdisciplinary Research

For the Giza Pyramid project the research broadened out the search for alternate sources such as archaeologist Mark Lehner's dig at Giza's workers cemetery and village (Shaw,

2003). The village included houses, and industrial sized bakeries and breweries (figure 4.5). Lehner discovered that excavated bones were mineralized indicating the workers ate meat which was the luxury food of the Egyptian middle classes. He corroborated this when he found an abundance of animal bones from sheep, and cows.

There is evidence that the workers received good medical care as one skeletal remain shows a worker who suffered several leg fractures healed well and straight, another shows evidence of brain surgery, and others had broken hands treated by binding. Lehner deduced that these were not expendable slaves but a workforce that was cared for with decent living conditions. His hypothesis is the unskilled workers were loaned out by villages as part of their contribution to the project. This was a significant discovery and has changed the view of how the project was executed.

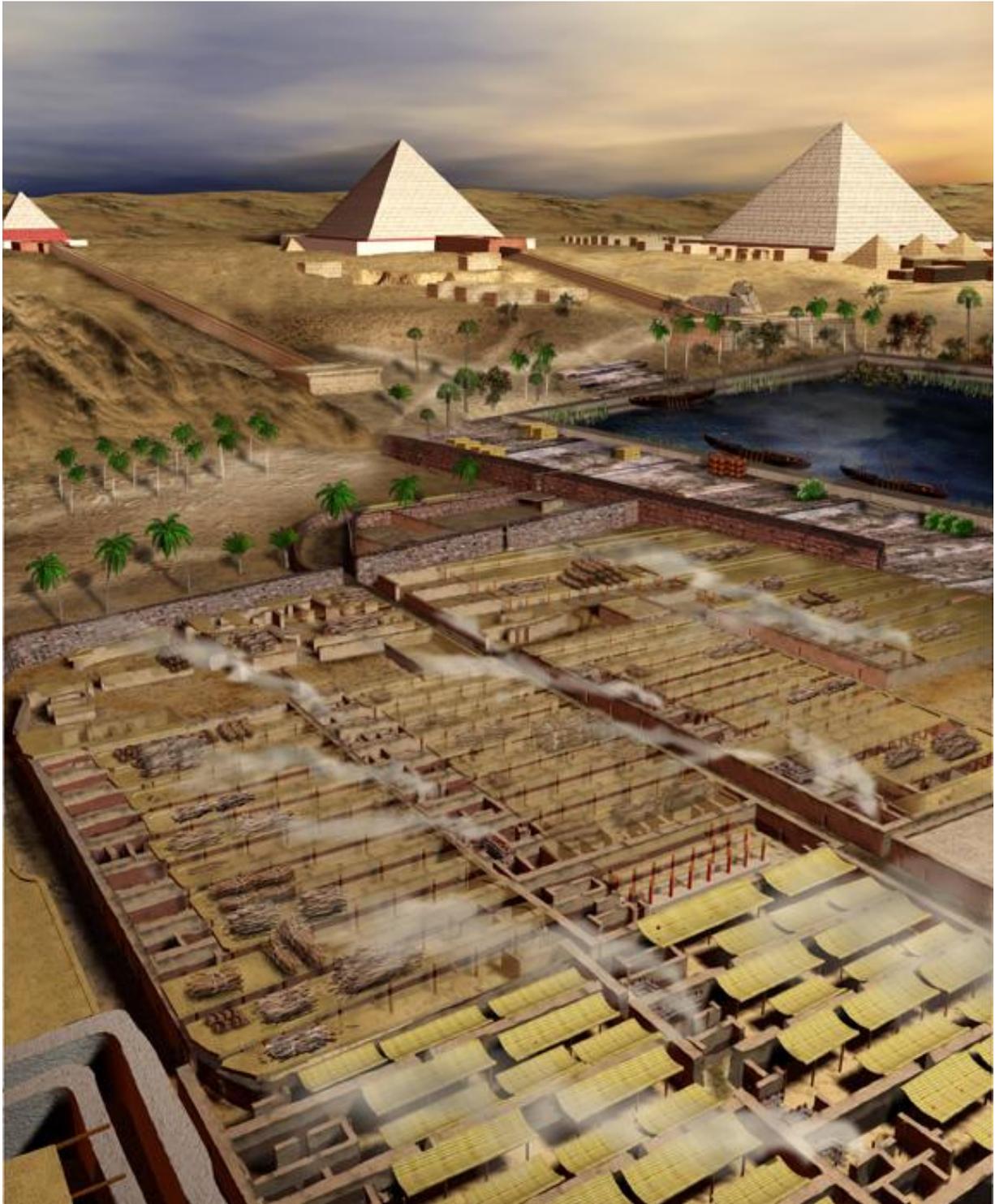


Figure 4.5: A recreation of the workers' village at Giza (Foley, 2001)

4.6.1.3 Findings from Other Types of Research Methods

Based on the interdisciplinary methodology, findings from other types of research methods were incorporated, for example:

- Progression of archaeological finds on-site
- Deduced building techniques from surviving physical buildings/structures
- Computer generated imagery of on-site project worksite
 - Workshops with tools and equipment
 - Living quarters (workers villages with kitchens, sleeping areas),
- Use of X-ray computed tomography, and head/body digital reconstruction from skulls/skeletons, for on-site worker's cemeteries and burial chambers
- Forensic science in examination of worker's graves and tombs
- Paleoclimatology reconstructing past climates by examining as ice core and tree ring records
- Ethnohistory and the history of various ethnic groups.

Field Research

On-site visits are particular useful and provide far greater insights into a historical project. For example, research into the Florence Duomo project (Publication No 6) not only led to the perfectly preserved Duomo, but the adjoining on-site museums containing the actual project equipment and project models:

Immersion into an historical subject – such as a visit to an historical site, a talk with a descendent of an historical figure, or careful perusal of primary documents – can enhance a researcher's ability to empathetically reconstruct past events. Such immersion is perceived as valuable because it: (a) facilitates a deeper understanding of the phenomena under study by allowing subtle nuances to be detected; (b) partially defends against cultural biases and values; and (c) allows historians to proceed intuitively, though somewhat subjectively, by being able to think and feel as did real historical actors (Nevett, 1991). (Carson, 1998, pp. 31)

This technique visualises the project and provides some context for understanding actors' motives and actions.

Historical Documentaries

Certain documentaries (National Geographic, PBS Nova, and BBC Horizon) have proved very useful. For example, research into Gothic cathedrals was considerably enhanced by *Cathedral Builders* (Macauley, 1986), that explored a cathedral project site and the project through an organisational lens. It provided great insight into the day-to-day workings of the project, and had similarities to an on-site visit.

Forums and Chat Groups

These are communities of interest for discussions, questions and answers with noted researchers in a particular field. Access to posted FAQs, or discussion threads proved very useful in enriching knowledge around the Titanic case study.

Re-enactments

These are empathetic reconstructions that go beyond the physical aspects of the event and can capture the mood, feeling, underlying thought processes, and motivations.

Data Triangulation

This refers to testing evidence by comparing it with other evidence through a variety of sources, or methods. It is a powerful technique in qualitative research that can overcome weaknesses that come from a single method.

4.6.2 Synthesis of Evidence

All collected data is analysed and the methods can include: content analysis, constant comparison method, thematic analysis, and analysis of narratives (Petty et al., 2012, pp. 381). Synthesis involves the integration of this authentic, credible and analysed evidence into a logical, causally explanative narrative of the case study. Grattan (2008, pp. 181) calls this **crafting**:

*An historical narrative has to make clear not only what happened but also why or how it happened: an account without interpretation is merely a **story or a case study**. So the historical narrative has to recount the collected facts and make clear when a deduction is being made. The process of deduction and narration can be seen as where **the crafting** is taking place, and where the historian is empathising with and making judgements about the assembled material.*

My research into the projects for *The History of Project Management* (Publication No. 6) uncovered that the following researchers had played architectural detectives. They had

painstakingly created a rich picture of the construction of a project by analysing data read from the fabric of the monument and synthesizing it into a plausible narrative, and deducing new theories.

Initial research into the Giza Pyramid project uncovered a significant new Internal Ramp theory by architect Jean-Pierre Houdin. Based on the synthesised evidence he questioned the practicality of an external ramp, in resources, materials and time, arguing that it would make the project unfeasible. The remains of the external ramp have never been found. He analysed the evidence and went through a process of deduction based on observations on what was feasible with the project scope and a 20 year time frame. He hypothesized an internal spiral ramp reduced the projections of the workforce size (100,000 to a more realistic 20,000). Together with Egyptologist Bob Brier they demonstrated this theory through computer modelling (Brier and Houdin, 2009) which was substantiated by French archaeologists who saw the computer model and provided magneto scans that had puzzled them since 1986. The theory is now seen as a breakthrough and is gaining wide acceptance in the Egyptologist community.

Similarly, Fitchen (1986) investigated historical construction practices by synthesizing a large body of literature on past methods scattered and fragmented. He analysed, diagnosed, evaluated, and interpreted clues to provide a meaningful narrative with insights into the Gothic cathedral projects.

Similarly, Manolis Korres (associate professor of architecture, University of Athens) and leading scholar on the Parthenon restoration project (Toganidis, 2007), identified the building practices of the Ancient Greeks (Hadingham, 2008, pp.1-3), through correcting the positions of stones. He described how his team acted as forensic architects, and reconstructed long-lost techniques, providing insights to project delivery and quality management.

In a final example for Publication No. 8, Brown (2000) went through similar detective work. He analysed the evidence and went through a process of deduction on Titanic's collision. He questioned the Titanic Sideswipe Theory to hypothesise a Grounding of Titanic Theory. He then compared the two theories through a counterfactual analysis and sleuthed what would

have happened to Titanic by comparing different outcomes. As a result, he created the *Last Log of Titanic* (Brown, 2000) a causally explanatory narrative of the case study.

4.6.3 Interpretation

The causally explanatory narrative of the case study is interpreted through the lens of a theoretical framework in an objective and critical way. The interpretation is an active approach that shapes where the emphasis is placed. Often the interpretation leads to new discoveries and hypotheses. The interpretation requires cross checking and testing for coherence, looking for contradictions before assessing implications and drawing conclusions.

My first two publications used two different lenses (e-business solutions and adaptive enterprise). Later publications used a project management lens, based on the PMBoK® (2008) which many have argued is the global defacto-standard for project management (Starkweather and Stevenson, 2010, pp. 31).

4.6.3.1 Discovery Extraction and Transfer of Historical Lessons

Through the interpretation historical lessons are discovered, analysed and evaluated, then extracted, transferred and transformed into contemporary lessons, not context specific. The examples provided below are from my research where external research and evidence was incorporated into a narrative which was then reinterpreted through a project management lens.

In my Giza Pyramid research (Publication No. 6) the research by Brier and Houdin (2009) was incorporated and reinterpreted. The principal lesson extracted and transferred was that the project scope and schedule can be actively reduced in the design by adopting innovative approaches (like the internal ramp) and technologies.

In my Hagia Sophia research (Publication No. 6) Ahmet Çakmak (Professor emeritus in earthquake engineering at Princeton University) made discoveries in the use of a cement with earthquake-resistant properties, (Moropoulou et al, 2000, pp. 543), a high level of sophistication and unexpected for the time. The principal lesson extracted and transferred was how major risks were identified and managed in the project.

In my Titanic research (Publication No. 8) Brown's (2000) research was incorporated and reinterpreted. The principal lessons extracted, transferred and transformed were related to project over confidence and stakeholder meddling.

The final example is Churchill's communication plan, taken from (Publication No. 5, pp. 111-118). The narrative was reinterpreted through a project management lens which guided the research to examine the approach, questions, and issues from a communication management perspective. It then extracted, transferred and transformed the historical lessons into contemporary lessons for project management practitioners to follow.

In these examples, the aim is for project management practitioners to recognise both the rich historical project narrative and the project management approaches and lessons, which they can apply to their contemporary practice.

4.6.3.2 Comparative Analysis of Projects

This was not actively used. With Publication No. 6 only a limited comparative analysis was completed (because of contextual sensitivity), by going through the nine knowledge areas (PMBok®, 2008) and comparing these to each project, for example, asking what-if-questions like how large was the project workforce for the Giza Pyramid or Parthenon projects.

Academic historians are very conscious of the risks and challenges in meaningfully comparing or juxtaposing historical periods, with different socio/economic environments, and the methodological issues that arise.

4.6.4 The Complete Research Methods

A summary of the research methods used are outlined below in figure 4.6

Research Methods

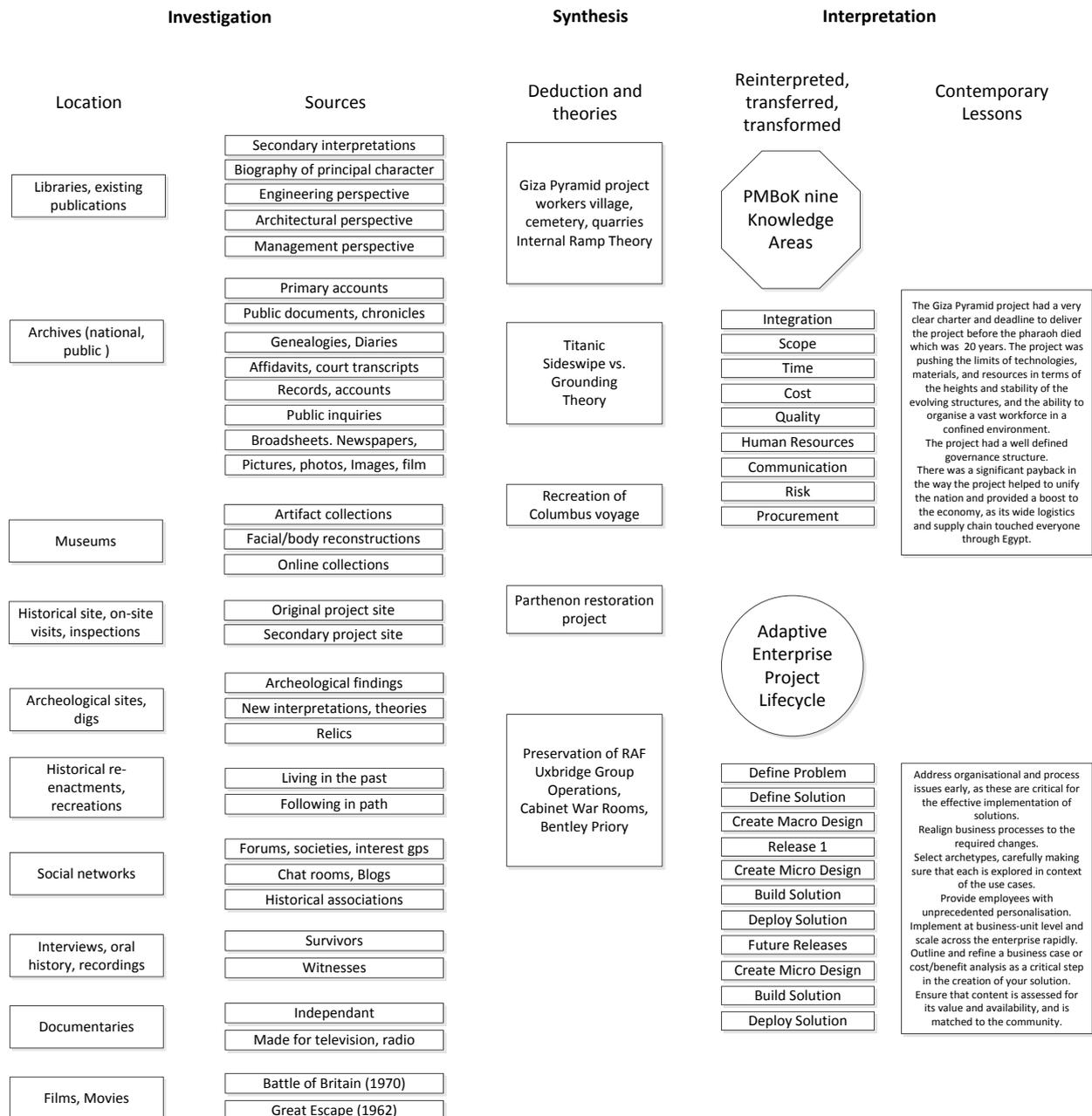


Figure 4.6: The research methods used within investigation, synthesis, and interpretation

4.7 Summary

This chapter reviewed suitable qualitative research methodologies and methods to address the research question. From the available research methodologies a combination of case study and historiographical research, advocated by academic community and historians respectively, was selected and used extensively for my own research. The emphasis was on examining narratives and, increasingly, the actor's experience. Historiography was used to discern the changing historical perspectives that were shaped by new and evolving theories.

A supportive methodology, interdisciplinarity, evolved from a knowledge gap in my later publications and was used to guide the research. It proved very useful in putting together a rich empirical data set that allowed for a comprehensive analysis of the project management dimensions and interpretation of the historical projects. It derived learning from beyond traditional literature or contemporary thinking by including disciplines like archaeology, forensic science, and paleoclimatology.

The selected research methods, although not used within all publications, fell into three categories. Investigation, which covered data collection methods like literature reviews, interviews and oral histories, field research and on-site visits. Synthesis, which covered content analysis, constant comparison method, thematic analysis, and analysis of narratives. Interpretation, which covered the theoretical framework, cross checking and testing for coherence, extraction, transfer and transformation of historical lessons into contemporary lessons. These are summarised in figure 4.6.

Chapter 5: Publications (Data)

5.1 Introduction

Chapter 4 established that the best qualitative research methodology was a combination of case study and historiographical research using a variety of methods. This chapter examines the publications/data and provides a brief outline of the context and relevance, the research methods undertaken, contributions, and impact factor. The publications have a number of common underlying contributions and methodological stand points:

1. A theoretical framework with a contemporary business lens to examine a topic (historical project) which includes a project lifecycle for the planning and execution of a project.
2. A common research methodology that is qualitative, interpretivist and narrative based.
3. Well known historical case studies with identifiable central characters (actors) that make up a team. The case studies address varied concepts like sponsorship, leadership, organisational structure, culture and governance. They have good historical data, archaeological records or ethnohistory.

The sub-section on research methods provides an audit trail of what research was actually done. It discusses the process of writing to publication, the actual concepts, evidence, and techniques used (Carson, 1998, pp. 30-35). It reflects on the dialogue involved, with whom, when and where, how much data was produced, how the data was analyzed, and a pointer to any issues that arose. It also shows the evolution of techniques.

5.2 Publication No 1: On-line, On-time, On-budget:

Titanic Lessons for the e-business Executive, IBM/MC Press (September 15, 2002), ISBN-10: 1931182345

5.2.1 Abstract

This publication uses the Titanic case study as a basis for research on implementing e-business projects into a production environment. The aim is to show the reader how to deliver e-business projects. The publication outlines the stages involved in creating mission

critical e-business services and the underlying environment to support these. It provides a step-by-step guide to the deliverables produced at each stage of the creation process. Much of the planning phase is spent on identifying and mitigating potential risks in operation because a considerable part of the effort is in realigning the organisation and procedures rather than the technology. The publication also outlines how to provide mission critical e-business services to meet best-in-class availability and 24-by-7 service level requirements.

Each chapter contains a Titanic-based narrative woven into the structure of each chapter. The narrative helps identify the value of each of the stages in the creation process and visualize the IT concepts being discussed.

5.2.2 Context and Relevance

The publication was possible due to my participation in the ebusiness movement (the integration of electronic technology in business functions) that was sweeping through the IT industry in the late 1990s. As part of Compaq (till 2000) I took part in a task force to create ebusiness services. In 2000 I joined IBM and the Innovation Centre for ebusiness where I had responsibility for delivering ebusiness services and solutions to clients. The publisher was interested in the complete end-to-end aspects of the publication in that it covered both the creation of an ebusiness solution and its implementation and operation. This was unique and not covered in other ebusiness publications. The target reader was identified as the ebusiness leader within a corporation, with a mandate of delivering ebusiness solutions.

5.2.2.1 Research Methods

1) Central concepts & terminologies	The creation, implementation and operation of a mission critical e-business solution that required a 24-by-7 availability, establishing and meeting service level objectives (SLO) and agreements (SLA).
2) Investigation, synthesis, interpretation & explanation	The research used a theoretical framework related to e-business. One issue was the limited evidence of Titanic’s 4 year project, where most of the facts (data) were related to the 4 day maiden voyage and disaster. A narrative was created from Brown’s (2000) unique chronology (log or timeline), that incorporated his Grounding Theory which was an antecedent or triggering cause for the disaster.
3) Evidence from primary & secondary	Secondary sources - body of well known publications; on-line forum (Encyclopedia-Titanica) noted researchers in the field including naval architects, engineers, and historians; library of images from Ulster Folk & Transport museum; Internet sites (history of ships, naval architecture); MERIT Project Best Practices in Enterprise Management; and the Chaos (2011) report.

4) Characteristic techniques	Contemporary IT project managers and solution architects were interviewed on their experience with project success/failure in the implementation and operation of e-business solutions.
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Table 5.1: On-line, On-time, On-budget

5.2.2.2 How it contributes to the discipline

The publication contributed to a few IT related areas namely in ebusiness, project management (including implementation), and operations management. Each chapter summarized the major points and considerations in the case study which was followed by a list of contemporary best practices for the organisation, based on the major points. The chapters were organized so that each chapter represented a project stage in the project lifecycle.

The publication established that a well known historical case study, with some interpretation, could be very relevant to highlighting the issues that occur in a contemporary ebusiness project.

5.2.2.3 Impact Factor

The publication was circulated to senior IBM Directors Worldwide responsible for ebusiness. It was presented at a number of IBM forums and conferences, namely at IBM's Advanced Business Institute conference of 500 attendees, and at IBM Blue Horizon forums (across Toronto, Edmonton, Vancouver each with over 100 attendees). It was also presented on eShareNet, an internal IBM web forum with up to 500 project managers. It was featured as an article in a number of internal IBM publications like newsletters and quarterly updates.

5.3 Publication No 2: Churchill's Adaptive Enterprise:

Lessons for Business Today, Multi-Media Publications Inc. (July 1, 2005), ISBN-10: 1895186196

5.3.1 Abstract

The aim is to show the reader how to plan and execute a project that delivers an adaptive enterprise, which is capable of adapting to various situations, and is based on the integration of various emerging information technologies that interact cohesively. An Adaptive Enterprise can rapidly react to business events in real-time, compare them against various scenarios, and enact appropriate countermeasures to stay ahead and thrive.

The publication has a historical case study threaded through it. The historical narrative follows Winston Churchill's plight (May-to-October 1940) from becoming Prime Minister through to the disaster at Dunkirk to victory in the Battle of Britain. It analyses how he responded and transformed his organisation to the modern-day version of an adaptive enterprise. It examines the creation of centres of excellence for code-breaking, military command, fighter production, and executive oversight (Bletchley Park, Bentley Priory, Whitehall, Storey's Gate, respectively), with the overriding need for data and process governance, so that these centres could operate both separately and together.

5.3.2 Context and Relevance

The research for the publication had started in 1996. When the publication was published in 2005 the concept of the adaptive enterprise had just begun to emerge in the IT industry as an off shoot of ebusiness-on-demand. Large IT corporations like IBM (2004) and HP (2005) developed strategies around it so as to take the concept into the business mainstream.

There was very little research and information on the adaptive enterprise with only one other publication on the market place (Haeckel, 1999). As a result, the publication received a lot of attention and was incorporated into HP's Adapt to Change theme in its overall roll out plan. The publication provided a tangible case study of how individuals in an organisation sought to make the organisation more adaptable to change. At the time there were practically no contemporary case studies of successful adaptive enterprises.

The target reader was identified as a business leader within a corporation, striving to create a more adaptive organisation. The reader was presented with the complexity of the challenges in applying the concepts of creating an adaptive enterprise and offered a unique view for business and technology management.

5.3.2.1 Research Methods

1) Central concepts & terminologies	The creation of an adaptive enterprise in a business environment, through the integration of various concepts in decision support/making (military command and control), business intelligence and statistical analysis (code-breaking), consolidation of data in real-time, with the emerging technologies of the day (1940).
2) Investigation, synthesis, interpretation & explanation	The research used a theoretical framework around an adaptive enterprise. This was invaluable in guiding the historical research. Antecedents – triggering causes for project: limited resources (fighter aircraft) to wage a conventional air battle, required radical approach;

	contextual causes for project success: the establishment of practices, technologies, and organisation.
3) Evidence from primary & secondary	One issue was the lack of publications on the subject with the exception of Adaptive Enterprise (Haeckel, S., 1999). Primary sources: Imperial War Museum online library of images;
4) Characteristic techniques	Initial interview with Stephan Haeckel (management theorist who developed the Adaptive Enterprise concept at IBM's Advanced Business Institute) continued into an email dialogue with him. Some limited research on the principal stakeholders through biographies: Churchill, Dowding, and Beaverbrook. On-site visits to Cabinet War Rooms.

Table 5.2: Churchill's Adaptive Enterprise

5.3.2.2 How it Contributes to the Discipline

The publication contributed to not just the adaptive enterprise but many sub-themes including data and process governance, knowledge management, information management and portals (egovernment), supply chain and operations management, and the use of adaptive technologies. The chapters were organized so that each chapter represented a project stage in the project lifecycle.

One of the objectives was to show readers how a well researched and known case study could provide a unique insight into the complex concept of the adaptive enterprise, and how this concept was not new. It demonstrated the relevance of historical projects to contemporary business practice and projects.

5.3.2.3 Impact Factor

The publication won the Eric Hoffer Book Award– for Business, 2007. It was widely presented at a number of forums and conferences, namely at IBM's On Demand World in 2003 at the Advanced Business Institute (500 attendees - project managers, principals, consultants, and architects), and the IBM Blue Horizon forums (Toronto, Edmonton), and the 'HP Adapt to Change' tour across Canada.

From the publication an extensive series of articles were created for *Gantthead* (25 parts), *Project Management World Journal* (26 parts), *Supply and Demand Chain Executives* (4 parts) and *Data Management Review* (10 parts).

Over time the supply chain aspects of the case study attracted a new audience primarily supply chain and operations management professionals which culminated in interest from

APICS (The Association for Operations Management). This led to a number of presentations to various APICS chapters in North America and spurred the creation of new articles.

5.4 Publication No 3: Titanic Lessons for IT Projects

Multi-Media Publications Inc. (September 21, 2005), ISBN-10: 1895186269

5.4.1 Abstract

The aim was to show the reader how IT project failures can be attributed to poor decision making in the project through a close examination of the Titanic case study. Compromises made during early project stages led to serious flaws in this supposedly perfect ship. All of these disastrous compromises and mistakes were fully avoidable.

The use of the Titanic case study was substantially expanded in this publication where it was the main thread, and more tightly interwoven with the contemporary IT project thread, in alternative paragraphs. The aim was to use the Titanic-based narrative to convey the outline of the project and then compare this to the equivalent activity within a contemporary IT project. It was also to create a less technical publication in comparison to No 1, paying more attention to the management of the project.

5.4.2 Context and Relevance

The IT market was constantly evolving and as e-business was becoming more mainstream Multimedia publications was interested in shifting the focus to IT projects. Practically all the historical research and publications available on Titanic related to the four days of operation and disaster rather than the project itself. So the publication had a unique slant on an extremely well known and popular historical case study, and mapped it directly to contemporary projects. The target reader was the IT professional and the project management audience which had steadily grown with the previous two publications.

5.4.2.1 Research Methods

1) Central concepts & terminologies	Project management, requirements gathering (functional versus non functional), decision making process during the design phase, and de-empathize e-business.
2) Investigation, synthesis, interpretation & explanation	The research used a theoretical framework around project management. The research found facts on the 4 year project had greatly increased, but mostly around the 4 day maiden voyage and disaster, so it was still an issue. Brown's (2000, pp. 9) Grounding Theory provided a new paradigm

	for causal analysis on the disaster.
3) Evidence from primary & secondary	Secondary sources through a body of well known publications found further data on the 4 year project. A marked increase in the number of images from other sources and internet sites. Brown (2000) challenged the accepted iceberg Titanic Sideswipe theory and preconceived notions about the disaster. The Encyclopedia-Titanica (online forum) was useful in gauging reaction to Brown's theory which became a cornerstone for this publication.
4) Characteristic techniques	Documentary: <i>Titanic– birth of a legend</i> (2005) examined the project at Harland and Wolff shipyard in Belfast and the lives of the workforce.

Table 5.3: Titanic Lessons for IT Projects

5.4.2.2 How it Contributes to the Discipline

The publication contributed to project management including implementation and operations. The IT industry for many years had been grappling with project failures and the publication contrasted the most notorious failed project in recent memory with the difficulties project managers faced on a daily basis. It analyzed all facets of constructing, marketing, and sailing of Titanic. It provided insights for the reader in several ways. First, the impact of decisions, made earlier in the project, on the operational side. Second, the challenges in finding a balance in functional and nonfunctional requirements, and avoiding common pitfalls that stem from collecting requirements (Yu, 2013). Finally, anecdotal evidence indicated that many organisations do not realize the importance of establishing Service Level Objectives early in the project and their importance in guiding the design and architecture phases of a project.

The publication took a step forward on the previous two publications, in demonstrating the relevance of historical themes to issues in contemporary projects. This correlates back to the principal research question in this thesis.

5.4.2.3 Impact Factor

The publication was presented at the PMI North American Global Conference in 2007 which resulted in invitations to run training workshops with five different corporate organisations and numerous PMI chapters. Between 2005 and 2013 this publication has been presented to well over 100 project management chapters/branches /associations globally.

An extensive series of articles were created for *Ganttthead* (25 parts), *PM World Journal* (20 parts), *Project Manager Today UK* (10 parts), and one for a Canadian national newspaper Kozak-Holland, M., (2004).

The impact of the articles and presentations was significant (see book reviews on mmpubs.com) in establishing how a historical case study could be used as a learning tool within project management.

5.5 Publication No 4: Project Lessons from the Great Escape (Stalag Luft III)

Multi-Media Publications Inc.; 1st edition (July 1, 2007), ISBN-10: 1895186803

5.5.1 Abstract

The aim is to show the reader how to launch a project in a difficult situation, a dire environment, where political support is lacking, and there are a lot of hostile groups trying to close the project down. The Great Escape went through very meticulous and extensive planning, and relied more on human ingenuity and perseverance, than established practices and tools. The project's inbuilt agility enabled it to survive interruptions and attempts to shut it down.

5.5.2 Context and Relevance

The three publications to date had found a strong audience within the project management community. So this publication was specifically written for this audience.

One new approach was the use of modern artefacts from within the project management lens to reinterpret the historical case study. For example, the use of a risk register (pp. 80,146,209) to display the likely risks the project faced, and then analysis of how the project leaders mitigated these risks. Although this is subjective it provides insight into the use of risk management.

5.5.2.1 Research Methods

1) Central concepts & terminologies	The management of a project from inception to shutdown, incorporating a project post-mortem.
2) Investigation, synthesis, interpretation	The research used a theoretical framework that examined this project through a project management lens and the nine knowledge areas of the PMBoK® (2008). The initial research found contradictions and

& explanation	discrepancies between the narratives of three secondary source publications which led me to look at different sources namely, George McKiel (ex-Prisoner-of-War (POW) and research advisor). He provided very specific answers to questions around the discrepancies and a rich personal interpretation of the event. This overcame the knowledge gaps to create a more complete and accurate picture which resulted in a rich and complete narrative. The event could be viewed as a project and specific project management elements (scope, cost, time) could then be readily interpreted from this narrative. Antecedents – triggering causes for the project: Bushell’s arrest by the Gestapo in Prague, and expansion of a new camp within the existing compound; contextual causes for project success: project was set up to be agile, adaptable, and highly resilient to changes.
3) Evidence from primary & secondary	Primary sources – POW notebooks, diaries, drawings, all available online; Images and archive sources from the USAAF Library Special collection; Imperial War Museum online library of images; Internet sites rafmuseum.org.uk; Secondary sources – three main publications.
4) Characteristic techniques	Regular access to George McKiel (participant in the escape (roles - penguin and stooge) and his network of surviving POWs (around the world) for first-hand accounts and to answer questions relative to grey areas of the project. Interviewed daughter and grandson of POW survivor Harold Garland. Paul Brickhill’s 1950 publication (POW survivor). BBC Radio interview/transcript of Jimmy James, The Great Escape; Internet sites - Oral History of event by POWs (www.veterans.gc.ca).

Table 5.4: Project Lessons from the Great Escape

The Value of Access to Witnesses

Paul Brickhill’s account was that of a POW, who didn’t see the event as a project, so it lacked discussion of fundamental concepts like a project charter, scope, schedule, or budget. I presented this to George McKiel and explained the difficulty in envisioning cost and procurement management in a POW camp. Where did the project manager get a budget from, and how did procurement work? McKiel was able to reinterpret these concepts so I could transfer, and translate POW activities into today’s project language. I was able to corroborate all this using archive sources from the USAAF online museum. McKiel fully supported examining the event as a project because it provided a modern reinterpretation that would keep the interest alive for future generations.

5.5.2.2 How it Contributes to the Discipline

There was a question as to whether the project management lens would hold up in a project that preceded the PMBoK® (2008) by 40 years. The research uncovered that it did, even in challenging knowledge areas like cost management (estimating and budgeting) and

procurement management, where there was no previous research. This established the value of using the project management lens in re-evaluating a historical project from the past, in that it examined areas of the case study that would have been omitted in previous research.

The publication contributed to project management, leadership, and general business management. One of the goals of the rich case study, with explicit and well known actors, was to foray into the softer side of project management in areas within human resources like team building and development, and communications namely stakeholder management. Finding a similar contemporary case study would have been difficult further reinforcing the value of historical case studies to contemporary projects.

5.5.2.3 Impact Factor

The publication was presented at the Risk Management Conference NEC UK in 2008, and the PMI North American Global Conference in 2009.

An extensive series of articles were created for *Project Manager Today UK* (9 parts), and one for a Canadian national newspaper (Langford, C., 2007).

The publication has been adopted by several universities for teaching project management namely, University of Denver, MBA class for Project Management, since 2008 and University of Stratford, Master of Science class for Project Management, since 2011.

5.6 Publication No 5: Agile Leadership and the Management of Change:

Project Lessons from Winston Churchill and the Battle of Britain, Multi-Media Publications Inc. (September 1, 2009), ISBN-10: 1554890357

5.6.1 Abstract

The aim is to show the reader how Churchill acted as the head project manager (PM) of a massive change project that led to the UK's transformation (May-to-October 1940), and affected the daily lives of millions of people. It scrutinizes Churchill's leadership that resulted in the victory of the Battle of Britain. It outlines Churchill's change management and agile management techniques and how they can be applied to today's projects. For example, how Churchill used communication management to boost morale, inspire his

cabinet, government, and nation to continue a fight already considered lost, and how he set up an intricate adoption plan using the influence of the media.

The publication extracts learning from Churchill's experiences that can be applied to business and project management today. For example, through a governance framework, Churchill had to organize the institutions and resources around him deftly to maximum effect. The publication provides a very strong case study for business transformation projects.

5.6.2 Context and Relevance

Corporations transform their organisations to be more agile and adaptive. Multimedia publications were interested in the agile theme and in particular Churchill's role and agile leadership in projects. The historical case study was important in that Churchill is recognized globally as an exceptional leader. The publication evolved from No 2 with a shift into the softer side of project management. The target readers are project managers and business professionals involved in transformational projects.

5.6.2.1 Research Methods

1) Central concepts & terminologies	The UK's transformation in terms of people, process and technology, the implementation of a governance framework, change and agile management techniques.
2) Investigation, synthesis, interpretation & explanation	The research used a theoretical framework around project management (PMBok®, 2008) with a focus on the stakeholders. Antecedents – triggering causes for project: Churchill's accession to Prime Minister; turning points pre battle: appointment of Beaverbrook to Air Production, Churchill's support for Dowding to remain; turning points in the Battle of Britain: air raid on Berlin; contextual causes for project success: the transformation of the UK, reorganisation of government, acceleration of fighter production.
3) Evidence from primary & secondary	Primary sources; Imperial War Museum library; Secondary sources: Postan, M., (1952); Hancock, W.K., (1949).
4) Characteristic techniques	Extensive research on the principal stakeholders Churchill, Dowding, and Beaverbrook through biographies. Multiple interviews with David Whiting (Step-son of Dowding (Chief Air Marshal)). On-site visits to Cabinet War Rooms, Bletchley Park, RAF Bentley Priory, RAF Uxbridge (examined collection of records and artefacts, with on-going correspondence for questions/answers with RAF historians). Email dialogue with Martin Gilbert (leading Churchill biographer).

Table 5.5: Agile Leadership and the Management of Change

Historical Detective Work and Causal Analysis - Asking Difficult Questions

The research uncovered how the fledgling Ultra system in May/June 1940 had shown its potential in uncovering enemy intent in the Battle of France. Yet there was no hard evidence that Ultra played a significant role in the Battle of Britain. Based on the battle outcome I hypothesised that Dowding was aware of and used Ultra. In 2008 as part of my field research I visited the pivotal RAF station Uxbridge. I questioned several RAF historians and the consistent response was Dowding was not given access to Ultra. This was at odds with the analysis I had completed on the unfolding battle. Ultra was too important not to give to Dowding. In 2010 a publication provided clear evidence from a new source and concluded that Dowding had indeed special access to Ultra.

5.6.2.2 How it Contributes to the Discipline

The publication contributed to agile project management, organisational change, management of change, communication management, and project governance. One of the research findings on project failures is that problems encountered are not predominately technical but relate to the organisational culture being aligned to a project and supportive of it. The publication relates how Churchill set up a governance framework, reorganized government, and broke down the barriers between vertical organisations. By embedding the traditionally disparate military arms into the war cabinet Churchill imposed an increased level of collaboration and support for his principal goals.

The publication further demonstrates the benefits of using a historical case study in highlighting the challenges in large scale business transformation projects. It would have been very difficult to find and reference a contemporary case study of such magnitude and complexity which provides such a depth of understanding of the main actors, their motives and actions, and role in the events. This further addresses the main research question of the thesis as to the value of historical projects to contemporary business.

5.6.2.3 Impact Factor

The publication won an award through PMAC (The Project Management Association of Canada and affiliated to IPMA) in 2010, in the categories: The Canadian Project Management Book of the Year and Project Management Contextual Competence Award for 2010.

In 2009 the publication was presented at a number of Data Management conferences (Annual North American (Florida), and UK (London)). From the publication several articles were created for *Project Manager Today UK* (2 parts) and *Public Safety Communications/APCO BULLETIN* (14,000 members; 88,200 readers).

5.7 Publication No 6: *The History of Project Management*

Multi-Media Publications Inc. (May 1, 2011), ISBN-10: 1554890969

5.7.1 Abstract

The publication closely examines 25 landmark and most influential historical projects (case studies) from the past through a contemporary project management lens. The aim is to show the reader how project management evolved over the past 4,500 years. It shows that modern project management practices did not just appear in the past 100 years but have been used - often with a lot of sophistication - for thousands of years. Examining archaeological evidence, artwork, and surviving manuscripts, this publication provides evidence of how each of the nine knowledge areas from the PMBoK® (2008) has been practiced throughout the ages. The publication covers the period from the construction of the ancient pyramids up to the 1940s.

The chapters are organized by eras and each chapter introduces the major events and changes that occur including technology, tools, and techniques.

5.7.2 Context and Relevance

It became very clear with the research that there are many publications that cover renowned historical projects, like the Giza Pyramid, but none cover the areas that would be of interest to a project manager. The majority had been written by architects and engineers who looked at Giza through a different lens (engineering or architecture). In these publications there is little coverage of scope, schedule, or budgets the fundamentals of project management. This further reinforced the need for the publication to serve the project management community with the target reader envisioned as principally a business or project professional.

5.7.2.1 Research Methods

1) Central	Provide evidence to support the hypothesis that modern project
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concepts & terminologies	management practices were used in the past.
2) Investigation, synthesis, interpretation & explanation	The research used a theoretical framework around project management (PMBok®, 2008) to view the historical projects with. The selection of the historical projects was without issues. Initial research found many secondary sources on the outputs of the projects. However, there was little reference to project management in as much how the project was initiated, planned, and executed. This guided research to alternate sources, in particular archaeological or restoration work around the sites. This brought much new evidence, theory, and fresh thinking to the research. The approach taken was iteratively moving between data collection (some quantitative), constant comparison to analysing the different data, investigating the theories and researching several projects in parallel. As patterns started to emerge, like the role of the sponsors, it spurred research in the other projects, which was on-going even as the final chapter was being completed.
3) Evidence from primary & secondary	Secondary sources: many publications and papers (over 30) across disciplines were used. Project Gutenberg, an online project to capture the original sources of literature. The what-if-analysis of the Colosseum walkthrough (Homer-Dixon, 2008).
4) Characteristic techniques	Video interviews, publications, and web-sites of archaeologists (Lehner, Brier, Korres, Çakmak) and their on-site work (Giza, Parthenon, Hagia Sophia). Personal on-site visits to Rome (Colosseum, Pantheon), and Florence for the Duomo, and visits to York Minster, Stockton-Darlington Railway, and Empire State Building in New York. The British museum provided important evidence, for example, the Romans practice of surgery and the ability to provide a high degree of medical care to the project workforce. Notable documentaries (and publications) Cathedral Builders (Macaulay, D., 1986), recreated the site of a cathedral project, and examined projects through an organisational lens.

Table 5.6: The History of Project Management

5.7.2.2 How it Contributes to the Discipline

The publication contributes to project management and the general body of knowledge in several areas. The first contribution is it reaffirms the hypothesis that project management is nothing new; it has been around for thousands of years in some form or other. People entering the field are looking at the past to better understand the background to project management today.

The second contribution is to support the professionalisation of project management. Other more mature professions like engineering and architecture have a long (accepted) and documented history. This publication very much contributes to building up of knowledge on

historical project management, and expanding the contemporary project management body of knowledge.

The third contribution relates to the debate over whether project management is a scientific discipline. One of the most significant discoveries in the research for the publication is a transition that took place in project management historically between the scientific age, and the industrial revolutions. Prior to this for 4,000 years the approach to project management was based on a qualitative (soft and interpretivist) experiential approach, where experience and knowledge were passed through the craft guilds and trades which concentrated on practical skills. In a guild apprenticeship a student worked with his/her master to learn these practical skills for between five and eleven years with rigorous periodic examinations. This system of guilds or trades had evolved from the military. In the landmark projects that were researched (Giza, Parthenon, Colosseum, Pantheon, Hagia Sophia) the project results achieved were absolutely astounding especially in that building thrusts (lateral pressures) were unknown (Fitchen, 1986) and the project completely depended on the skill of craftsmen. But the transition across this boundary led to a shift in the project management approach, shifting from the sole use of observation or experiment to one based on scientific and mathematical calculation. This allowed for the use of new materials (concrete and steel), and new technologies (gears, steam), that fundamentally changed the approach to project management where mathematics and engineering principals were critical. It also led to a more scientific perception of project management.

Relative to the main research question of the thesis and the value of historical projects this publication contributes by providing an unparalleled analysis of historical projects through a project management lens. It also contributes to the debate concerning whether project management is a scientific discipline and helps explain the background to it. Before the transition project management was predominantly an art—based on inductive knowledge.

5.7.2.3 Impact Factor

It has been cited in several papers to date. It was presented to both HP and IBM internal web forums for project managers with well over 1500 attendees combined. It won “The Webinar of the Year Award Winner” through PMAC for 2010.

5.8 Publication No 7: Building the Case for Historical Project Management

This paper was presented in June 2011 to IRNOP's 10th conference in Montreal.

5.8.1 Abstract

The aim is to show the reader how common misperceptions about historical projects and project management exist such as these projects had an unlimited budget, unlimited workforce (predominantly slaves), and unlimited time lines. These misperceptions leave an impression that what was practiced in the past is not relevant to contemporary projects because there were no limits on cost, scope and time. It sets the notion that these historical projects are so different, from a project management standpoint, they cannot be taken seriously for comparative purposes. It also infers that modern project management is unique, unconnected to the past, and started recently (twentieth century).

Based on a synopsis of Publication No. 6 the paper explores five landmark historical projects and determines that they dealt with comparable issues and had similar characteristics of modern projects: the multiple competing constraints of scope, schedule, budget, quality, resources, and risk. Some of these landmark historical projects were delivered in timescales, and levels of quality that we would struggle with today. Hence, these historical projects should not be dismissed as irrelevant but embraced.

The paper presents the palaeontologist's analogy and how the paradigm of the time was re-evaluated which led to the Dinosaur Renaissance and a rethinking of the paradigm and its constraints. This led me to the use of interdisciplinary research to meet a knowledge gap.

5.8.2 Context and Relevance

This paper was accepted and presented as a conference paper (from 115 papers 50% were accepted) in the stream Expanding the domain of project management by revisiting its past. The conference was attended primarily by project management academics and leaders from the principal associations (PMI and IPMA).

It became very clear with the research into the paper that cultural biases existed where media, film, and television had heavily influenced an unfounded view of the historical projects. For example, the Giza Pyramid project is immediately associated with a slave workforce. Films from the 1920/1930s shaped this view of early civilisations built on the

backs of slaves. The research into contemporary archaeology and Mark Lehner’s dig at Giza’s workers cemetery and village (Shaw, 2003) dispels this misperception. Jumping forward thousands of years into the medieval era, another misperception is with the Gothic cathedral projects in France, suggesting that medieval craftsmen toiled for perfection and the end-deliverables took centuries to deliver. These projects had limited budgets so the cathedrals were built in segments and put to use right away: a direct parallel to contemporary ideas of incremental development

5.8.2.1 Research Methods

1) Central concepts & terminologies	Historical projects dealt with comparable issues and had similar characteristics to modern projects: the multiple competing constraints of scope, schedule, budget, quality, resources, and risk.
2) Investigation, synthesis, interpretation & explanation	The research for Publication No. 6 concluded with the identification of certain patterns across the 25 projects. This paper selected five of these projects (Giza Pyramid, Greek Parthenon, Roman Colosseum, Hagia Sophia, and Chartres Cathedral). Causal analysis on the four misperceptions stemmed from a generalized view of ancient regimes as being autocratic and authoritarian in nature, an almost universally accepted paradigm today. The dinosaur renaissance was incorporated into the publication. How well the project addressed the misperceptions, and the quality of evidence available determined their selection.
3) Evidence from primary & secondary	Secondary sources: used the same data set as Publication No. 6.
4) Characteristic techniques	As Publication No. 6 using the same techniques.

Table 5.7: Building the Case for Historical Project Management

Presenting at the conference provided some useful feedback and identified issues in two areas. First, the importance of contextualisation and the contextual sensitivity required when examining several projects across different cultures and significant temporal ranges. Historians refrain from making comparisons at a micro level, generalisations across time and space, but may do at a more macro level (historical periods) in a sensitive approach. Second, the limitations in using the PMBoK® (2008) as a project management framework, in that it is too narrow to cover all aspects of project management (Smyth and Morris, 2007, pp. 425).

5.8.2.2 How it Contributes to the Discipline

The principal conclusion from the research was that these historical projects had far more in common with contemporary projects than expected, not just in cost, scope, time, but in the

driving factors or motivation behind initiating the projects. For example, many were public works projects to support local economies and to put people back to work. Their success was based on creating a conducive surrounding environment, to support and allow the project to proceed successfully without getting caught up in red-tape or morale sapping politics. This was established by leaders, particularly sponsors looking to capitalise on the benefits of the project. As a result, the paper argued it would be a mistake to dissociate historical from modern project management. The paper contributed to sub themes of project management namely, project initiation, sponsorship, creating a case (business) or justification, and constraints.

5.8.2.3 Impact Factor

The paper advocated a rethinking of the past and examined how other disciplines have changed paradigms that are out of date. Following the conference the paper has been presented to over 10 project management chapters.

5.9 Publication No 8: Project Management Blunders:

Lessons from the Project that Built, Launched, and Sank Titanic; Multi-Media Publications Inc. (April 15, 2012), ISBN-10: 1554891221

5.9.1 Abstract

The aim is to show the reader how project management blunders were the root cause of the Titanic disaster. The publication looks at the Titanic case study through a project management lens and takes a detailed view of all aspects of the project from its business case, through to the sponsors and stakeholders, their decisions and the political dimensions, the vendor relationship, and how all this was managed. Published to coincide with the centenary it provides an alternative view of the narrative very much shaped by the management of the project. Compared to Titanic publications (No 1&3) the use of the Titanic case study was expanded even further to be the only thread in the publication.

5.9.2 Context and Relevance

There is substantial interest in project success and failure and the case study contributes valuable lessons to this. The target reader is the project professional who can examine this

project through the nine knowledge areas of the PMBoK® (2008) and hence gain a better understanding of their application.

5.9.2.1 Research Methods

1) Central concepts & terminologies	The difficulties in managing principal stakeholders and the sponsor through the requirements process, and how they can unwittingly compromise the project without realizing their actions.
2) Investigation, synthesis, interpretation & explanation	The research for the publication started with a theoretical framework based on the inter-dependencies between the project life-cycles of the two ships Olympic and Titanic (maiden voyages were 11 months apart). Causal analysis pushed research into areas of the Olympic-class project not scrutinized before, forming a hypothesis that Titanic’s project life-cycle was impacted by the Olympic/Hawke incident. The research evolved as the reading continued (Inquiry Report into the Olympic/Hawke Incident). An iterative approach was taken where the research activity moved between data collection and theorizing, common to qualitative research (Bryman and Bell, 2007, pp. 407). Initially, the incident seemed unrelated but with more details the scale of the accident was significant, triangulated by the images found in the archive. The causal hypothesis changed from whether this incident impact Titanic’s project (cannibalisation of parts, shifting workers) to how could the project leadership allow this to pass, and then cut back Titanic’s sea trials (testing).
3) Evidence from primary & secondary	<p>Primary sources: The UK National Archives contained three sources. First, the Board of Trade (BOT) Reports on the project, an extensive collection of minutes and reports submitted by BOT inspectors/surveyors who visited the Harland & Wolff shipyard several thousand times during the 5 year project. The documents are an audit trail of project activities that BOT inspectors were involved in, and a historical record of a number of project management processes that were in place like procurement and quality management. Inspections were completed in all project areas including crew space, passenger’s quarters and surveyor’s report on steel tests.</p> <p>Second, the Inquiry Report into the Olympic/Hawke Incident covers the full background and account of this incident with images that were collected and presented at the inquiries. This was not a simple court case and was escalated through the court system as the Royal Navy and White Star battled it out for 5 years.</p> <p>Third, the written accounts from the two post disaster inquiries (UK and US), both online, with hundreds of eyewitness testimonies. Some physical evidence (structural – rivets, plates) pulled up from the wreck site, and part of a travelling museum. One issue was the limited impact the wreck site has had overall.</p> <p>Secondary sources: more references on the 4 year project in publications. One publication researched the Public Records Office in Northern Ireland</p>

	for Harland & Wolff board meeting minutes.
4) Characteristic techniques	On-site visits to Belfast (5 locations), Liverpool (2 locations), Southampton, Halifax and New York, and the corresponding museums in each city. Recorded radio interviews (1950) with surviving officers (Lightholler, Boxgrove); Corporate histories of the relationship between the companies White Star and Harland & Wolff, and JP Morgan's financial institution. From this an examination of the project stakeholders and also their role in the project. New documentaries: <i>Saving The Titanic</i> , (2012), docu-drama of the engineers who worked tirelessly to keep the Titanic's essential electricity running during the disaster.

Table 5.8: Project Management Blunders

5.9.2.2 How it Contributes to the Discipline

The publication contributes principally to project management by analyzing each phase of the project, and then exploring themes that are interrelated and rarely viewed in a single case study like:

- How the requirements management process can be impacted.
- How complex interrelationships between projects in a program need to be carefully managed.
- How the executive sponsor can unwittingly compromise the project.
- How project over confidence can completely invalidate some project stages.

Organisations can successfully collect different types of requirements (business/functional/nonfunctional) but they are highly inter-dependent and if not carefully managed can compromise the design phase. An executive sponsor can unwittingly compromise the project by influencing the emphasis on certain types of requirements and not paying enough attention to other types, typically the nonfunctional.

Project over confidence played a big part with the project team who viewed the ship as practically unsinkable. This raised the complacency and allowed major mistakes to be made in the implementation of the project which led to the disaster.

5.9.2.3 Impact Factor

This publication was presented to a HP internal web forum for project management with over 1000 attendees. It has been presented to many project management PMI chapters recently, typically as part of a full day workshop.

5.10 Publication No 9: Florence Duomo Project (1420-1436):

Learning best project management practice from history, Ref. No.: JPMA-D-13-00060R1IJMP, (2014)

5.10.1 Abstract

The paper has been accepted for publication following two stages of a double blind review and is available in the 'Articles in Press' section.

This paper narrates the project management of the construction of the Florence Duomo to successful completion by Filippo Brunelleschi in the fifteenth century. This was the most significant dome project in Europe in 1300 years, and possibly the most significant, innovative and complex project of the Renaissance era (Colombo, 1997). It still stands as the largest brick dome ever built.

Brunelleschi and his project team were reaching beyond their grasp in delivering this project with the organisation, technology, and processes available to them. This was a structure 30 meters above the ground that weighed up to 35,000 tons. They used only basic mathematics and geometry as they lacked an analytical-mathematical approach (Fanelli, 2004, p. 174) to calculate the stresses, pressures, and thrusts of the structure. The risks of this non-mathematical approach were enormous and would horrify an engineer or architect today.

In order to achieve what seemed technically impossible at the time, Brunelleschi researched and adapted the construction and project management of the Pantheon in Rome in the second century. The project shows the transfer of lessons from the Roman Pantheon by Brunelleschi. These two historic periods are 1300 years apart.

5.10.2 Context and Relevance

This initial paper was submitted for a special issue of the IJPM, 'Classics in project management', December 2012. However, following review the paper was accepted as a regular publication in IJPM. The target readers are primarily project management academics, leaders, and professionals.

5.10.2.1 Research Methods

1) Central concepts & terminologies	Project management best practice; Product and process innovation; Project management knowledge transfer
2) Investigation, synthesis, interpretation & explanation	The research used a theoretical framework around project management and found several discrepancies between secondary sources in the chronology of events (prior to the project start-date in 1420). This required expanding the research to biographies. Antecedents – triggering causes for project: wealth and a fast growing population, competition with other cities and states; contextual causes for project success: Brunelleschi researched and adapted the construction and project management of the Pantheon in Rome in the second century.
3) Evidence from primary & secondary	Secondary sources: Broad range of academic papers from Tension Ring in Masonry Domes, and Concrete Vaulted Construction in Imperial Rome, to Brokering Knowledge In Project Management and Firms as Knowledge Brokers. Digital archive of sources from Opera di Santa Maria del Fiore, 1417-1436 (Haines, 2013). Brunelleschi biography by Vasari (1550). Publications by Hamlin (1948) provided a very rich narrative into the life of Brunelleschi, and the project.
4) Characteristic techniques	On-site visits to the historic centre of Florence, a living museum with insights into working life in medieval times, and to the perfectly preserved Duomo, adjoining on-site museums containing the actual project equipment, and nearby Museo del Opera del Duomo containing the project designs (paper) and models, Brunelleschi’s tools and reconstructed workshop. On-site visits were made to the Pantheon in Rome.

Table 5.9: Florence Duomo Project

5.10.2.2 How it Contributes to the Discipline

The publication contributes to project management in describing the project through a rich narrative but it addresses the principal theme of knowledge transfer, and also best practices, product and process innovation which are essential to contemporary project management practice. It analyses how the project manager assessed the problems facing the project, and then went through a process of deduction to rediscover Roman best practices (used in the Pantheon) which he could interpret, transfer, and transform. As a result, he was able to improve his own practices using new technologies, equipment, and materials, to create unique solutions.

The approach taken by Brunelleschi is fundamentally important to this thesis as it vividly demonstrates the relevance of historical projects (Pantheon) to the contemporary project of the time (Duomo) separated by 1300 years. This in turn highlights the value of analysing historical projects for best practices that can contribute to new solutions.

The case is valuable in understanding key drivers of project management success, and illustrates the substantial potential for learning, and therefore knowledge transfer, from previous historical projects and experiences.

5.10.2.3 Impact Factor

The paper has been accepted for publication.

5.11 Summary

All the publications reviewed have a similar philosophical approach and research methodology that is qualitative, interpretivist, and narrative based, using historical case studies. Each publication uses a theoretical framework with a contemporary business lens to examine the historical case study.

A review of each of the nine publications demonstrates an evolution in the approach. First, the use of the narrative or case study has changed. Initially, it was supportive to highlighting the issues that occur in a contemporary project but over publications it has become the single thread in the publication. Second, there has been an expansion from a single to multiple case studies. Third, the contemporary business lens has changed across publications, e.g., from ebusiness solutions, to adaptive enterprise, to project management. Fourth, the target reader has changed from the general business and IT professional, to professions like project management. For this reason I included nine publications with three related to the same Titanic case study.

Most of the publications were completed independently once a contract was signed with a publisher. As the number of publications has expanded the selection of historical case studies has been very important and has required a degree of judgment typically based on the known and written history of the case study. The research has made critical use of published works across a variety of different disciplines that include history, project management, business, management, and the history of business and technology. In cases where the published works have not been available, or contradictory, an effort has been made to find source materials from within national and museum archives, and libraries. Often written evidence is not enough and interdisciplinary research like archaeology has been required.

As the publications evolved so did the research methods, like the use of interviews, oral histories, the incorporation of new theories, and occasionally quantitative data. Although the sources of data were less conventional when put together they provided a rich empirical data set that allowed for a comprehensive analysis of the project management dimensions and interpretation of the historical projects. This analysis also evolved with the development of best practices in interpreting and explaining the narratives, and then transferring historical lessons.

All the publications may be deemed original based on several factors. For example, the use of the contemporary business lens in examining the historical case studies. Even though these have been explored and written about previously, like the Giza Pyramid, it has been done through a different lens like that of civil engineering or architecture. The use of the contemporary business lens provides a distinct contribution to the knowledge of project management in that the historical case study can be readily understood by a project manager and seen in a contemporary light. This also allows the historical case studies to be mined for the best practices of that time which could then be compared to today's current practices. This has led to the discovery of new practices or facts which have been forgotten over time.

Chapter 6: Conclusions

6.1 Review of Research Contributions

In the conclusion of interpretivist research Walsham (2006, pp. 326) suggests the need to define the claimed research contributions in four ways:

6.1.1 Audience Who May Benefit

A likely audience who may benefit from the contributions of this interpretivist research, and the findings and recommendations of the study includes the following. The first, project management researchers would be interested in the historical side of project management and analysing historical projects. The second, academics would use this work towards establishing the discipline, and researching a theory of project management. The third, practitioners would use the lessons from history on their own projects. The fourth, a general business audience, within project oriented organisations, that is seeking fresh alternatives would take value from historical lessons for general business use.

6.1.2 Contribution to Literature Derived From the Interpretivist Research

Project management academics such as Cicmil and Hodgson (2008) and the IRNOP 2011 conference, have called for more critical project studies because of project management literature's frequent neglect of political, social and ethical dimensions of project management work. The thesis has demonstrated that historical project case studies (with lessons) can address these neglected dimensions, provide greater pluralism and broader conceptualisations of projects. Contemporary case studies are constrained and cautious in divulging information that could impact the reputation of a contemporary organisation, or be advantageous to their market competition. Historical project case studies are not constrained, and one clear advantage that they have over contemporary ones is that over time they are less likely to be subject to bias by the writer. They can also boldly go into areas that are highly sensitive and politically explosive to a contemporary organisation like executive (sponsor) decisions, or ethical behaviour. They can also identify practices that have been lost to time, or are not a part of contemporary project management. Thus the historical case studies and lessons can broaden out the project management body of knowledge, and enrich project management learning. The approach is well established in

notable journals like *Journal of Management History*, which explores historical case studies and uses the lessons in contemporary management.

6.1.3 Declaration of the Research Claim

This declares the research claim in terms of what the thesis offers that is new to the audience and literature. The principal research question is to present the case for the relevance of historical project lessons to contemporary business practice, and the secondary objective is to present the approach used in creating these.

To address the former the thesis has provided numerous examples of historical project lessons through the nine publications (chapter 5) that would be recognized by contemporary project management, and that contribute to the project management discipline and contemporary business. This is new to the audience and literature.

In addition, the thesis has also provided examples of notable articles and case studies from the *Journal of Management History* which has a substantial body of publications and covers categories related to history, management and the associated lessons. This may be new to the audience.

To address the secondary objective the study established an approach through a methodology for identifying lessons from historical projects for the business world. It has shown how lessons (knowledge) can be taken from the interpretation of a historical project case study using a contemporary business lens within a theoretical framework which changed across publications. It used interdisciplinary research in taking inputs and ideas from other disciplines, and incorporated these with new theories in the causal analysis. This analysis evolved with the development of best practices in interpreting the narratives and transferring historical lessons. The methodology contributes not just to the analysis of historical projects but the rationale for why. This is new to the audience and the literature.

6.1.4 Explanation of Using the Research

There are several ways the interpretivist research could be used. First, researchers could continue the research and analysis of individual historical projects, to further expand the domain of explored historical projects and lessons.

A better understanding of project history can improve our understanding of the difficulties and approaches used in creating, shaping and managing projects.
(Söderlund and Lenfle, 2012)

The December 2012 special issue of *The IJMPB* published research to fill a knowledge gap in historical projects.

...the authors also see the role of critical engagement with the past to question what we take for granted to be able to improve our collective ability to think and from that end develop project management thinking and research. In that sense, revisiting the past might provide avenues to future research and adventurous explorations.
(Geraldi and Söderlund, 2012)

Researchers could adopt the thesis approach described to analyse other historical projects or reanalyse the case studies discussed in chapter 5. This type of research also avoids repeating mistakes.

Second, academics can use this study in their efforts to establish the discipline of project management. Other more mature professions like engineering and architecture have a long accepted and documented history. Lessons taken from historical projects can highlight the commonality between contemporary and historical projects, the longevity of the profession in thousands of years, and help underpin the credibility and stature of the discipline.

Another role of project history would be to create a common ground among academics within this domain of knowledge. (Söderlund and Lenfle, 2011)

The maturity and professionalization of project management are important to existing, and new practitioners entering the field, in determining their potential career paths.

Third, practitioners can use the lessons from history on their own projects. These lessons or knowledge have a value when they are introduced into a contemporary business organisation, for use by project managers.

...history can help us to better understand the roots of project management and the evolution of current managerial practices. This could lead us to recognize innovative managerial solutions from the past that are still relevant today and contradict the dominant model of project management. (Söderlund and Lenfle, 2011)

The value is particularly high at certain points in the business cycle, for example, when a business opportunity has been identified for the first time and a project is initiated. The

availability of these lessons at the beginning of a project can help shape it, especially with the introduction of a new technology, or when an idea is being formulated. There is also a strong argument to bring these lessons into the project if and when it gets challenged, or it runs into trouble.

Fourth, a general business audience within project oriented organisations. With the acceptance of projects in the business world today, as the defacto way of opening up new opportunities and getting new initiatives off the ground, this business community would take an interest in any alternative approaches derived from historical lessons for contemporary use. These would help manage limited resources with greater efficacy, identify risks, and deliver projects to a broad range of stakeholders.

6.2 Review of Philosophical Approach

Relative to the research completed for my publications and the principal research question it is important to review my philosophical stance with the ontology and epistemology (figure 3.1).

My ontological position, idealism, has evolved with the publications and taken root. It was rooted in my understanding of the nature of the reality that was discovered around the historical period and project, and the assumptions made by the actors (project sponsors and principal stakeholders). Documents or evidence of the period carried access to the actor's beliefs, attitudes, knowledge, and the influence of such assumptions. Did the actors believe in a hard external reality? A wider knowledge of the period and the actors within it helped to develop a feel for the belief systems (figure 3.3).

Epistemology modifies methodology and justifies the knowledge created (figure 4.1).

Researchers actively need to adopt a theory of knowledge and engage in knowledge creation with at least tacit assumptions about what knowledge is and how it is created, in this case historical lessons for contemporary use. My epistemic position, interpretivism, was rooted in evaluating the truth of the evidence in the past and analyzing it in a depersonalized manner to create knowledge. This required finding the truth even in the event of missing or conflicting evidence. In the writing of the publications I needed to be transparent about my own subjectivity to enable readers to make judgments about it.

The interpretivist perspective provided me flexibility that allowed me to investigate the context of each historical case study, and make research adjustments as necessary. For example, the lack of evidence, a weak hypothesis, or a poor explanation led to a knowledge gap which prompted the use of interdisciplinary research.

The interpretivist position is also important to the debate within project management circles related to soft versus hard project management , or the bottom-up approach that emphasizes value, tacit knowledge, reflexivity and social complexity, versus the instrumental control of narrow cost/time/quality objectives (Sage et al, 2009, pp. 541). Some of the academic community advocate the former, and my research into historical project lessons strongly supports this position.

6.3 Review of Methodology

The thesis determined that my methodological stance for the research was qualitative and interpretivist (table 1.1). For most of my publications this was my only methodological option because only qualitative data was available. The thesis explored various possible methodologies for researching historical lessons, turning to both contemporary practices. It asked the question - how do historians examine history? It examined their approach to investigation, synthesis, and interpretation of narratives and events. It also questioned the rationale in taking this approach. It determined that the methodology needed to be flexible for understanding underlying reasons and conditions under which a historical project happened, which examined the narratives of accounts, and the actor's experience of projects.

The thesis selected a combination of research methodologies: case study and historiographical (favoured by historians) which evolved with the introduction of interdisciplinary research. The latter opened up new disciplines like archaeology, forensic science, paleoclimatology, and ethnohistory. This introduced me to new theories beyond traditional literature or thinking like Giza Pyramid's internal ramp or Titanic grounding.

6.4 Review of Method

The thesis examined the approach followed in the discovery, analysis and evaluation, then extraction, transfer and transformation of lessons from historical projects.

My research methods for investigation resulted in a rich and empirical data set. This included findings from some less conventional methods like archaeological finds on-site and deduced building techniques.

My research methods for synthesis analysed all this data and integrated it into a logical, causally explanative narrative of the case study.

My research methods for interpretation have evolved, with the use of a theoretical framework and lens to interpret the narrative (event and cause) and then identify and draw out lessons for contemporary understanding. There are inherent difficulties with transferring and transforming lessons across periods requiring sensitivity to historical context and contingency.

In summary, the research methods allow for a comprehensive analysis of the project management dimensions and a deep interpretation of historical projects.

In addressing the principal research question of this thesis figure 6.1 shows how my approach allows historical project lessons to be transferred to contemporary business practice.

Making use of the lessons

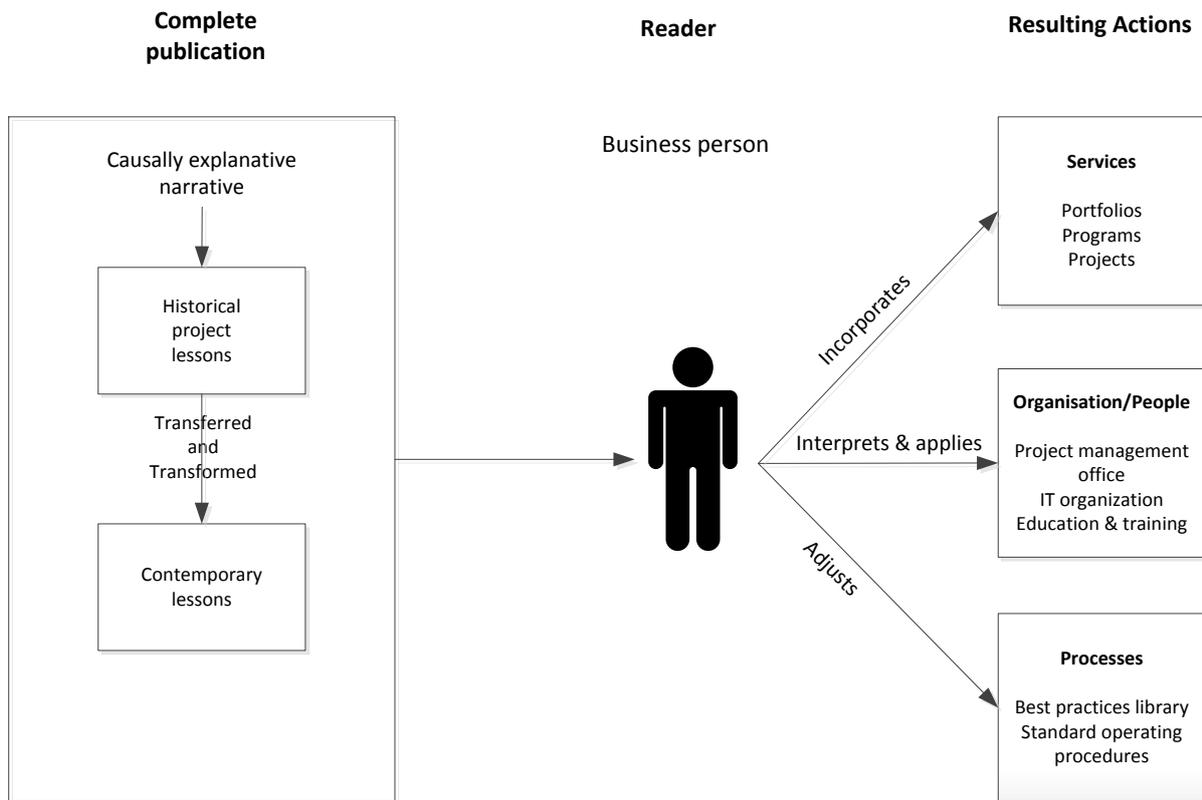


Figure 6.1: The reader reads, interprets and applies the lessons for contemporary use

6.4.1 Weaknesses in Method

The following section discusses the blanks and blind spots in the research.

6.4.1.1 Internal Criticism: Historical Reliability

Grattan (2008, pp. 176) raised the issue of conflicting evidence, and how is the truth to be found? Few documents are accepted as completely reliable, Gottschalk (1956, pp. 163) sets down the general rule:

...for each particular of a document the process of establishing credibility should be separately undertaken regardless of the general credibility of the author.

An author's trustworthiness may establish a background probability for the consideration of each statement, but each piece of evidence extracted must be weighed individually.

6.4.1.2 Availability of Literature and Publications

One weakness is that the study of historical projects and project management is still relatively new and there are very few academic papers or publications available to use as a baseline and explain their significance to contemporary business. An alternative is to look to the *Journal of Management History*.

6.4.1.3 Limitations of the Theoretical Framework

Another area of potential weakness is in how historical events are interpreted through the selected framework. A lot depends on how the narrative is told, for what purpose, and which framework is used. The framework may generate both opportunities but also may establish limitations and blind spots because it may not be broad enough and cover all the project management dimensions like the political, social and ethical.

6.4.1.4 Transferability of Lessons

What may constitute a lesson in a historical project does not automatically transfer to today's world as there is a context-dependence that may limit its mobility. Historical lessons may need to be transformed as they are transferred. The context changes in terms of technology (equipment and materials), organisation (how people interact with the technology), and process (when the technology is used). There is research on transferring and brokering knowledge between contemporary projects, and the challenges involved (Holzmann, 2013). However, there is little research on the transformation of historical lessons for application to contemporary business/projects and a question of how much transformation is needed to make the lessons meaningful.

So there are inherent difficulties with transferring lessons across periods (Haydu, 1998). Historians advocate sensitivity to historical context and contingency. Over time this has required the development of best practices in interpreting and transferring historical lessons.

6.5 Future Work

What further work is needed? The thesis very much supports further research into historical projects and the process of building up knowledge of historical projects and lessons management, and expanding the general body of project management knowledge. With globalisation it is important to address the different cultural aspects of project

management. Thus countries around the world can have their own examples of historical projects within their own culture to refer to and not be presented with just a western view of twentieth century project management they may not readily identify with. They need to determine which historical case studies to use and which to exclude.

6.5.1 Suggestions for Future Work

The principal recommendation for the future is that more individuals are encouraged to undertake research into historical projects. There are questions that need to be addressed such as the direction the research should take, and the source of this research? For example, are there historical projects from periods of history like the heights of the Roman Empire, the Chinese dynasty, or the Industrial Revolution of the nineteenth century? Are there specific historical projects to search for that are more useful in providing lessons? For example, are there historical projects that have certain characteristics akin to contemporary projects like the incorporation of new materials or emerging technologies, or coping with high rates of change, or dealing with certain types of external constraints? The *Journal of Management History* also provides (figure 2.1) a useful guide here.

Another area is with the ontological framework proposed by Gauthier and Ika (2013, pp. 12) and determining the differing perceptions of project, project management, and project manager (figure 3.3) through historical eras. Ethnohistory could be explored further and possibly be used in the future.

Another area relates back to the perceived view that project management is a scientific discipline. One of the most significant discoveries in the research for *The History of Project Management (Publication No 6)* is the transition in project management over several hundred years with the renaissance, spread of printing, the scientific age, and the industrial revolutions. Before the transition project management was predominantly based on a qualitative experiential approach and inductive knowledge. After the transition project management shifted from observation/experiment to one based on scientific and mathematical calculation. This allowed for the use of new materials, and new technologies, which led to a more scientific perception of project management.

Finally, in support of establishing the discipline of project management, an *International Journal of Project Management History* could be initiated, the methodology presented in the thesis could be fully developed, and contributions could be made to the existing BoKs.

In summary, there are historical project lessons which are very relevant today and are directly related to contemporary guides and theory. As a result, projects of the past should not be ignored but carefully analyzed for historical lessons that can be transformed and applied to contemporary projects. The impact that this will have on the role of Project Manager in the 21st Century is significant, because it will establish best practices and a lineage to the past as a discipline.

6.6 Summary

In reviewing the publications I have produced strong evidence of the relevance of historical project lessons to contemporary business practice, thus fully meeting the research question. When all my publications are put together they provide a collective body of knowledge that is being used for reference by the project management community. Therefore, I have made a contribution to the body of project management knowledge, and helped to bridge the gap between practice and research.

The thesis has also shown that the research methods and approach taken are in-line with those that historians would use although they may apply slightly greater rigour in areas like the causation and the antecedents to an event; a difference to be expected between historical publications and historical case studies for the business world. Also a limited quantitative approach was tried but at a future point should be considered through mixed methods, or, for example, through surveys of historians.

As a consequence of creating the publications I have put a series together, *Lessons-from-History*, to encourage other authors to do their own research on historical projects and through the series get these published. The publications from the series are not historical publications, but business publications that use history, or more specifically historical case studies. As the author of these publications my background and qualifications are that of a project management professional. I have a passion and interest for history but minimal

formal academic qualifications. It is likely that other authors in the series will continue to be primarily business people (project managers) rather than historians, or academics.

6.6.1 Final Thoughts

Before starting the research for literature related to historical projects I was aware of several management journals but somewhat sceptical and convinced that the results would show just a minimal return. But this just has not been the case. The rich return of the *Journal of Management History* and other material has by far superseded my expectations in the depth and quality of publications. Although most are not directly in the discipline of project management the use of historical case studies is very well established. My exploration of these journals has very much encouraged me to further my research, as in that my own publications (in the *Lessons-from-History* series) are not unique. It has also inspired me to the possibilities of alternative approaches and to try new techniques with my future publications. This has motivated me to extend the series and to take it in new directions.

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Summary Sheet of Submitted Papers and Books

The following published works contribute to the thesis.

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Publication No 2: Kozak-Holland, M., (2005), *Churchill's Adaptive Enterprise: Lessons for Business Today*, Multi-Media Publications Inc., ISBN-10: 1895186196

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Publication No 9: Kozak-Holland, M., Procter, C., (2014), Florence Duomo Project (1420-1436): learning best project management practice from history, *IJPM*, Ref. No.: JPMA-D-13-00060R1IJMP